

Light and LIGHTING

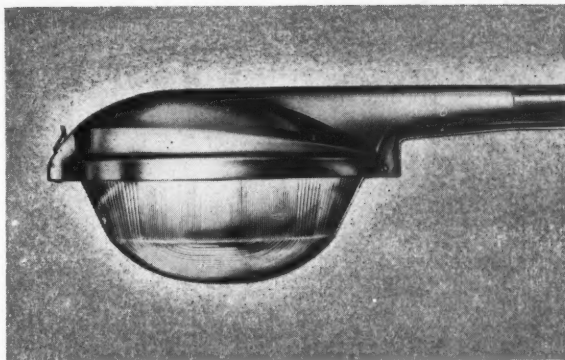
SEPTEMBER, 1957

PRICE 2s. 6d.



Holophane

Scientifically designed **STREET LIGHTING**



Holophane Engineers have been actively engaged in the development and improvement of street lighting technique over the past sixty years; the accumulated experience of their laboratory and field research is reflected in today's range of prismatic lanterns for all public lighting needs. The new oval bowl unit (as illustrated) for Group "A" roads is one of the most recent Holophane developments.

Write for further details, or . . .

see **STAND II, A.P.L.E.**



HOLOPHANE LIMITED

SCIENTIFIC ILLUMINATING ENGINEERS

ELVERTON ST., WESTMINSTER,

LONDON, S.W.1

Phone: VICTORIA 8062 Grams: Holophane, Sowest, London,



Stanton Type 8 Prestressed Spun Concrete Lighting Columns at Banbridge, County Down.

STANTON PRESTRESSED SPUN CONCRETE LIGHTING COLUMNS

The type shown is part of a wide range of Stanton designs approved by the Council of Industrial Design. All Stanton Group 'A' Columns are acceptable to the Ministry of Transport for use on trunk roads.

Photograph by courtesy of J. G. McKinney, Esq., B.Sc., A.M.I.C.E., A.M.I.Mun.E., Town Surveyor, Banbridge, County Down.

MAIN PRODUCTS

- PIG IRON
- FOUNDRY
- REFINED
- CAST IRON
- PIPES AND SPECIAL CASTINGS
- GENERAL CASTINGS
- TUNNEL SEGMENTS
- SLAG
- TREATED; DRY
- HOT AND COLD ASPHALT
- COKE OVEN BY-PRODUCTS
- BRICKS
- CONCRETE
- PIPES AND MANHOLES
- LIGHTING COLUMNS
- PAVING FLAGS
- GENERAL PURPOSE SHEDS
- PRESTRESSED CONCRETE
- PRESSURE PIPES
- LIGHTING COLUMNS

THE STANTON IRONWORKS COMPANY LIMITED NEAR NOTTINGHAM

Light and LIGHTING

Published by The Illuminating Engineering Publishing Co. Ltd.
on the 1st of each month at 32, Victoria Street, London, S.W.1.
Telephone: ABBey 7553. Subscription rate 30s. per annum.

contents

255	Editorial
256	Notes and News
	Illuminated Signs
259	(1) The Typographer's Contribution, by Allen Hutt
263	(2) The Architect's Approach, by Bryan Westwood
270	(3) Types of Illuminated Sign, by F. F. Newlands
274	Lighting Abstracts
276	Penberthys' Dept. Store
281	Association Française des Eclairagistes at Lyon
284	New Products
286	Postscript, by 'Lumeritas'

Luminous Signs

NATURE long preceded man in the provision of luminous signs. The heavenly bodies are not merely givers of light but givers also of information to those who—like the mariner—learn to read them. But terrestrial luminous signs are for the most part man-made, and their development and use has been remarkable in recent times. Such signs are now almost numberless and their diversity almost boundless. In pattern, colour and effulgence some are spectacles rather than signs, and it may be wondered whether this aspect of them does not mask rather than emphasise the message they are intended to convey. Times Square and Piccadilly Circus afford free displays of "lumiére," though the "son" is no more than that provided by the traffic. However, we are not complaining, though we hope that good taste will be exemplified in more and more of our luminous signs as time goes on. Let the "town" be painted with light of every rainbow hue so long only as it neither assaults nor offends the popular eye. The design and fabrication of luminous signs is a special branch of the lighting art which affords much scope for originality and not a little for the expression of aesthetic imagination. In this issue our special feature deals with luminous signs.

Notes and News

WE had hoped in this issue to tell you about the two spectacles of Sound and Light which are currently running at Woburn and Greenwich. At the invitation of the Duke of Bedford we attended the preview at Woburn, but Greenwich is a pleasure that must wait until we have now had our holiday. We have been trying to get to Greenwich ever since it opened on August 1 but on all the evenings when we were free the weather has kept us indoors. Though, so we are told, the performance at Greenwich is put on whether it is wet or fine we are not prepared in our present pre-holiday low spirits to collect colds, chills, rheumatism or anything our climate can offer, before we go on holiday.

So all we know about Greenwich is what we have gathered from the newspapers, BBC and other journals. And the comments have been so varied that even if we were able to comment at first hand you would have to see it for yourself to make up your own mind whether this form of entertainment is to your liking or not. As examples of comments so far published the BBC man thought it all rather trivial and adversely compared the flashing lights and noise at the Palace with the silent *Cutty Sark* just around the corner; the reporter from the *Observer* was enthusiastic; whilst the correspondents of two well-known architectural papers differed in their views as far as they possibly could. One of the latter obviously had rheumatism before he started—he curses the French for inventing *Son et Lumière* and wants no more of it. The other equally obviously started in the right mood (he admits to a good Press party) and congratulates the *Daily Telegraph* for bringing *Son et Lumière* across the Channel and looks forward to enjoying many more such spectacles elsewhere.

So you see, even if we said it was jolly good or impossibly bad you would still have to go and see it for yourself. Gentlemen of the lighting industry who have seen the shows in France and therefore have an established criterion in their minds say that Greenwich is not as good as it could be.

Before we go on to Woburn it might be as well to mention what appear to be the main faults with both according to the known facts. In the first place both cover too long a period of history—Greenwich from 1066 to 1805 and Woburn a period of 800 years up to the present time. This is far too much and must inevitably include a lot of dull stuff which could be omitted so that the more interesting parts could be played up to advantage. Secondly the scripts and

the lighting need to be better co-ordinated; frequently the script refers to parts of the building which the audience cannot possibly see, whilst in the meantime the lights are showing up some other part. If this is entertainment then some licence is permissible—if so-and-so did something-or-other in the north wing which is out of sight it would be justifiable to make out that it happened in the south wing if it adds to the enjoyment of the assembled throng. Then there is the sound. At Greenwich we gather it is supposed to be stereophonic—but more than one person has told us that he didn't notice it—the “stereo” part we mean. At Woburn it is not supposed to be stereophonic—which is a mistake when it could have been with little trouble—and in any case is not very good, certainly nothing like up to the French standard.

Greenwich, as is well known, is done with French equipment throughout. As far as the lighting is concerned we thought the main point in using French equipment was to use the “Infranor” projectors, but as far as we know they are not used.

At Woburn the best part without any doubt is the lighting, both from the point of view of the public and as a matter of technical interest. Directional effects are achieved by using tungsten lamps but all the coloured lighting, which is very well done, is by fluorescent lamps. If more places in this country go in for these spectacles we shall see much more of this system in which all the colour effects are obtained from three circuits using blue, red and gold fluorescent lamps including some of the new Very High Output (VHO) lamps which are here being used in this country for the first time. Thorns, who no doubt welcomed the opportunity of taking part in this experiment, deserve to be congratulated on the result.

The weakness of Woburn is the script, which in parts is unbearably poor. One gets the impression that everyone in Bedfordshire has had a hand in it and that the poor producer (Robert Atkins, whose “general dramatic advice” is acknowledged in the programme) has just had to do what he can without treading on too many toes. Let us quote at random, the subject is the fifth Duke: “What he wanted to do and what he succeeded in doing was to make Bedfordshire a more prosperous county, particularly in the matter of sheep breeding. He offered prizes to the farmers who could produce the best sheep both for wool and for mutton. He gave other prizes for the breeding of cattle and of pigs. But his great work was to inaugurate what became known as the Woburn

Sheep Shearing Week." And so on. We can't remember what the lights were doing during this part of the show but there was positively no demonstration of pig breeding.

The sound at Woburn could be better. The system used is claimed to eliminate all echo, but when King Charles' head fell at Whitehall the echo of the bump rolled around Woburn Park for quite some time.

We hope our comments will not stop you going to Woburn, or to Greenwich. These experiments are here for you to see. And whatever our professional colleagues may say we think we shall see a good many more of these spectacles in time—provided the weather improves this summer and the present shows don't lose too much money.

Foot-candle

Our note in the June issue on the lm/ft^2 versus foot-candle controversy has brought us a letter from Mr. Eric Williams of Sydney putting forward his solution to the problem. He points out that, though many of the early experimenters have their names perpetuated in terms such as volt, ampere, lambert, etc., the originators of the electric lamp have not been so honoured. What could be more fitting, says Mr. Williams, than that their names should be linked in the unit of illumination to be known as an *Ediswan*. Mr. Williams suggests that though there was no collaboration between Edison and Swan, indeed as far as is known the two never met or even corresponded, they did produce the first practical incandescent electric lamps, and the association of their names in this way would be most fitting.

One obvious objection to this proposal is that 'Ediswan' is a well-known trade name throughout the world, and whilst the proprietors of that name may not object to its wider use (and assuming that there would be no legal difficulties) others may not be so happy.

Be that as it may, we now have two names on our list, *Walsh* and *Ediswan*. Remembering the correspondence which we published some few years ago from those who had such strong views on foot-candles, etc., we had expected more comments on our *Walsh*. Are there any more comments before we put the mighty machinery of the BSI and the International Standards Organisation into operation on this subject? Please read this month's Postscript before rushing into print.

Course on Lighting

We have been asked to give another reminder about the course to be held at the York Institute of Architectural Study from September 12 to 16. Apparently there are still some vacancies which the organisers would like to have filled. The course, we

are told, will "review the basic criterion upon which the principles and practice of natural and artificial lighting are based, together with the associated use of colour. It is particularly designed to assist teachers in schools of architecture but will be of interest to architects generally and to members of the lighting industry. The course will be arranged as a seminar in which each session will be opened by a particular speaker, the other lecturers being present throughout the course to ensure a balanced discussion of each topic. There will be illustrations (and possibly demonstrations) where necessary, and details of these, together with facilities for copying slides and other material, will be made available."

The lecturers are Allen, Dykes Brown, Gloag, Hopkinson, Medd, Derek Phillips and Wilcock.

On their notices the organisers state that "the course has received the active support of the Building Research Station." They have omitted to say that they also received a lot of help from the IES.

The fee is four guineas. Reservations should be sent to the Institute at Micklegate, York.

Counter-Attack

Our colleague "Lumeritas," in the January issue, referred to the "Counter-Attack" feature in the December issue of *The Architectural Review*. You will recall that this was a plan to deal with subtopian sprawl and the general disfigurement of town and country from which we are undoubtedly suffering in this country.

The Architectural Review has set up a Counter-Attack Bureau which offers advice and also publishes a bulletin each month in the *AR* drawing attention to threatened outbursts of vandalism and quoting cases where intervention has been successful. A recent quoted example of the latter is one at Abingdon, where concrete columns around the Town Hall have been removed and replaced by steel standards and brackets which, it is stated, though not elegant are light and unobtrusive. A picture of the former concrete column and one of the new steel column are shown.

Now we have every sympathy with the aims of Ian Nairn and his colleagues but we do wish they would play fair. Of the photographs mentioned above that of the concrete column is taken from such a position that it cannot but help hitting you in the eye; that of the steel column is taken so much farther away that it can hardly be seen against the fabric of the Town Hall—the concrete column photographed from the same position would probably have been equally inconspicuous.

So please, Mr. Nairn, to keep the sympathy and support of the lighting boys (and so far they are with you) will you please play the game.



Public banking hall in the Milan head office of the Cassa di Risparmio della Provincia Lombarde. Details of the installation are given on page 285.

read.
both
mean
firm
centu
very
graph
that
Bodo
most
mean
called
most
on w
stone
and s

W
ordin
good
mans
say t
their
callig
have
basic
struc

T
on th
in re
Appr
Ency
letter

ILLUMINATED SIGNS

The design of illuminated signs provides a meeting point for the architect, the lighting engineer and the sign manufacturer—all of whom need the specialist advice of the typographer. The vast increase in the number and variety of illuminated signs, and the tendency towards signs that are internally lit or silhouetted, provides the designer with far greater scope, particularly in his choice of lettering, than was provided by the neon-outlined sign. But greater scope means more opportunity for bad design, and it is hoped that this symposium, to which a well-known typographer, an equally well-known architect and a leading sign manufacturer have contributed, will be of value to all concerned with illuminated signs.

1 The typographer's contribution

By Allen Hutt

FROM the typographer's point of view, an illuminated sign is basically no different from any other mode of displaying a word or words to be perceived and read. Whatever technique is used, the lettering must be both good and appropriate. "Good," in this context, means a letter designed in accord with the flexible but firm traditions that have developed during more than five centuries of the art of printing and stretch back to the very beginnings of the Latin (or Roman) alphabet. Calligraphy is an important, though not the only, element in that tradition. The great Italian printer and type-designer Bodoni described printing as "the final outcome of man's most beautiful, ingenious and useful invention—that, I mean, of writing." The other element might well be called architectural or, perhaps, monumental; for the most perfect examples of the classical Roman capitals on which our alphabet is based were the letters cut in stone on monuments such as the Trajan column in the first and second centuries of our era.

With such apparently simple roots it may seem extraordinary that there is such an astonishing proliferation of good letter design. The minutiae of design and draughtsmanship involved cannot be examined here; suffice it to say that the outstanding artist-designers have always had their eyes on the inscriptional originals, as well as the calligraphic derivatives. Their vastly varying end-products have not been the result of radical departures from the basic design, but of subtle inflexions of shading, serif-structure, angle of curvature and so on.

There is an immense and constantly growing literature on the subject and the designer will find ample information in recent standard works such as John R. Biggs's *An Approach to Type* and the Turner, Berry and Johnson *Encyclopaedia of Type Faces*. The main divisions of letter-design are based on the serifs—the small angular

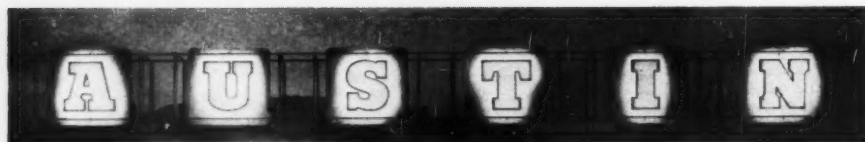
strokes which complete the main strokes of a letter—and the broad divisions are as follows: Old Face (with angular stress in the drawing and with serifs bracketed to the main strokes); Modern (with vertical stress and serifs unbracketed); Egyptian (with square or slab serifs) and Sans-serif (as the name indicates, without any serifs—the

INSTITVTI CVM IAM
PERDV CANIALLOVRE SIA
QUID IN ME O CORDE FU
Uertem ouirtuae lupe
est qui autem super pet
Natalis hore seu tyrannus hœf
Adeo dimissu scipionem leti
Freno l'ardir; con morte acerba

Development of Roman calligraphy from 4th to 15th centuries. (From Tarr: "Printing Today," by kind permission of the publishers, the Oxford University Press.)



ILLUMINATED SIGNS FOR INDUSTRY



Below, left, the width of this display is 90 ft. and the letter 'K,' which is outlined in red tubing, is 12 ft. high. The exposed tubing of the main sign is azure and cornflower blue; of the sign above, pearl white. (Franco-British Electrical Co., Ltd.) Below, installation in Toronto made mainly by an English firm, but installed by its Canadian branch. The anchor is 30 ft. high; the lettering, 6 ft. high. Both are made of stainless steel and are lit from behind to give a 'halo' effect. (Pearce Signs, Ltd.)



Left, using a silhouette technique, the lettering of this sign at the South London showroom of Mercedes-Benz is lit from behind by a double line of light-blue tubing shining on to the tiled fascia. The double-sided box sign is 4 ft. 6 in. in diameter. It consists of opal 'Perspex' panels on which is painted the famous Mercedes trademark. The box is lit from within by four circular sections of intermediate-white tubing. (Claude-General Neon Lights, Ltd.) Below left, 'Austin' sign comprising 'Perspex'-faced letters silhouetted against illuminated background panels.

Some
inclu
a Me
(Play
(Fro

"blo
othe
and
the
T
clud
the
the
letter
Vict
sign
exhib
desig
be m
of b
mea
depa
the
T
not
of d
frequ
capi
spac

Plantin Bold	Perpetua Bold
Bodoni Bold	Times Bold
Goudy Bold	Studio
Albertus	Temple Script
<i>Condensa</i>	<i>Gillies Gothic</i>
PLAYBILL	Matura
<i>Allegro</i>	<i>Signal</i>
<i>Ariston</i>	<i>Amanda</i>
<i>Legend</i>	<i>Locarno</i>
<i>Trafton Script</i>	<i>Coronet</i>
Eden	Stellar
Chisel	Holla
LYDIAN	PRISMA
DELPHIAN	ROCKWELL

Some contemporary display faces, including an Old Face (Goudy Bold), a Modern (Bodoni Bold), an Egyptian (Playbill), and a variety of scripts. (From Tarr: "Printing Today.")

"block letter" of the layman). Associated with one or other of these main groups are the various Shaded, Open and Decorated letters, the Three-Dimensional letters and the Scripts.

The stigmata of bad letter-design are many. They include notably the curving of strokes not normally curved; the excessive raising or lowering of horizontal strokes; the shortening of diagonal strokes and the distortion of letter-forms by compression or expansion. The late Victorian and Edwardian age was the nadir of type design, at which all these negative phenomena were exhibited, but there was another luxuriant outcrop of bad designs (mostly American) in the late 1920s, which may be more of a trap for the unwary. These designs, spoken of by their sponsors as "modernistic" (whatever that meant), were marked at their extreme point by a total departure from any recognisable letter-design at all, as in the type called Braggadocio.

The selection of a well-designed letter is, of course, not the end of the matter. There arises next the problem of display. The wording of an illuminated sign is more frequently in capitals than in lower-case letters and, with capital letters, the typographic principle of "letter-spacing" is of great importance. This principle pre-

scribes that the space between letters should not be *mechanical* (evenly spaced throughout the word) but *optical* (unevenly spaced, allowing for the differences in letter form and curvature, so that the spacing *looks* even). Obviously this principle of optical spacing is of particular importance when a device like an illuminated sign is being designed. The lines that follow are (a) solid, (b) mechanically letter-spaced and (c) optically spaced:

- (a) **ILLUMINATED WAY**
- (b) **ILLUMINATED WAY**
- (c) **ILLUMINATED WAY**

Clearly more space is needed, optically, between I and L, or M and I, than between A and T, or W and A. With lower-case letters, letter-spacing is not necessary and is, indeed, frowned upon by most authorities. If it is used, however, it should follow the same general rules as for the spacing of capitals.

A further display point of importance is the use of the ampersand (&). Some letters have better-designed ampersands than others, but an ampersand which may be thought unattractive or unduly heavy will often look better if reduced in size (relative to the size of the letters) or used in the italic form.

There remains the important question of the suitability—the fitness for a given purpose—of a particular design of letter. It is evident that an engineering works, a nylon stocking factory, a high-grade hotel, a country club, a gown shop or a pub, all call for a different style of letter if their signs are to be appropriate. They can

ROMAN TIMES
BRITISH DESIGNER
American Point Systems
ADMIRABLE se
Useful Newspaper fount F
Magnificent Drawings G
GRAND MARCH s
GRAND I

Type distortions of the turn of the century. (From Dowding: "Factors in the Choice of Type Faces," by kind permission of the publishers, Wace and Co., Ltd.)

Not Just Signs...



... PEARCE SIGNS

A sign is a fine investment when it is made to PEARCE Seven Star Quality standards, and designed by the Company who have been makers of fine signs since 1791.

Our design and development service is at your disposal.



PEARCE SIGNS, LTD.
NEW CROSS, LONDON, S.E.14.

REGIONAL COMPANIES & SERVICE CENTRES IN BRADFORD, BRIGHTON, CARDIFF, DUNDEE, LEICESTER, MANCHESTER, NEWCASTLE, SOUTHAMPTON & TORONTO, CANADA

all, i
non-o
Erba
of wo
like
"mo
Gouc
Alleg
Traff
jovia
but i
firm
can l
witho
For
eithe
men,
enlar

IN

2

IN
it
L
to sc
(possi
propo
the po
not in
etc.
of res
place
carefu
insuffi
suspec

It
design
the C
produ
tion th
The t
family

all, it is true, be served with a well-displayed line in a non-committal letter like one of the good sans-serif, Gill, Erbar or Kabel, in one or other of their many variants of weight and style. But a sturdy slab-serifed Egyptian like Karnak might well evoke engineering; a sharp "modern" like Bodoni, the nylon factory; the dignified Goudy Bold or Albertus, the hotel; the swaggering Allegro, the country club; one of the scripts (Ariston or Trafton), the gown shop; and the down-to-earth and jovial Playbill, the pub. The possible variations are all but infinite, and a suitable and evocative sign for any firm or institution, no matter what its product or service, can be selected from the great range of printers' types, without having recourse to individually designed letters. For the manufacture of the sign, the lettering artist can either copy, at the required size, from an alphabet specimen, or the wording can be set in type, proofed and enlarged photographically.

NN Z

minimum minimum

Above, Braggadocio—its N and Z compared with those of Perpetua Bold, and a word in lower case compared with the same word in Gill Extra Bold (from Tarr: "Printing Today"). Right, Gill Sans and its variations (from Dowding: op. cit.).

Extra Light & *Italic*

Medium & *Italic* **Bold & *Italic***

Extra Heavy Ultra Bold

Medium Condensed **Bold Condensed**

Extra Condensed

EXTRA BOLD TITLING

Gill Sans Shadow Line

SHADOW

SHADOW

CAMEO

CAMEO RULED

2 The architect's approach

By Bryan Westwood, F.R.I.B.A.

IN the past, architects and planners have regarded the illuminated sign as the *enfant terrible* of the façade.

Lay members of local government committees tend to scrutinise excessively the designs submitted to them (possibly because, in contrast to complete development proposals, they are relatively simple to understand) and the police are (rightly) concerned that private signs should not interfere with the easy recognition of traffic signals, etc. As a result, there is, throughout the country, a host of restrictions and regulations which vary from place to place. Proposals for the erection of illuminated signs are carefully scrutinised lest they should project too far or be insufficiently high above the pavement; their robustness is suspect and their size feared!

It is not surprising, therefore, that for many years the design of illuminated signs has stultified. Yet a visit to the City of London shows that the early sign-makers produced truly inspired work. Without the aid of illumination they achieved their effects solely by colour and form. The three balls (from the coat of arms of the Medici family) is so striking as never to be forgotten, while the

simple grasshopper of Martin's Bank is about as good as anything of its kind could be.

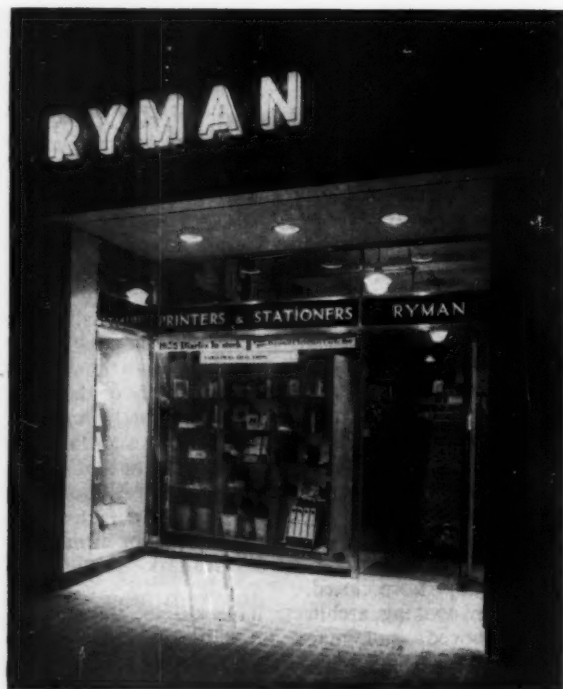
In mentioning these signs, I am not suggesting that there is no need for the illuminated sign. Without lighting, a sign cannot compete with other features of the surroundings, while at night it cannot be seen at all. The point that needs emphasising is that there is great scope for the design of illuminated signs of equal quality to some of these early symbols. A critical study of the signs in most commercial areas shows immediately how far short of this standard of design the average sign falls.

Nevertheless, the situation is by no means static, and the illuminated sign is becoming more widely accepted as an essential part of the urban scene. In fact, many people are beginning to consider it as a major element in giving an air of gaiety to our towns after dark—particularly after the shops have closed.

Forward-looking architects have not let this change pass unnoticed, and many buildings are now being designed with signs that are an integral part of the exterior composition. In Copenhagen, for instance, there is a shop



ILLUMINATED SIGNS: THE RETAIL STORE



Above, a new branch of Fifth Avenue stores (ladies' fashions) in Oxford Street, London, W.1. Mounted vertically on the fascia of fluted aluminium are magenta tubes intended to give a 'band-box' effect. The main sign, on the Oxford Street frontage, consists of bold 18 in. letters of black 'Perspex,' with gold-leaf bevelled edges, outlined by white tubing. The sign on the other frontage (based on the design of a New York street sign) is of similar construction. The words 'Fifth Avenue' above the windows are backed by opal 'Perspex,' lit from behind by magenta tubing. (Claude-General Neon Lights, Ltd.; architect, Michael H. Egan, F.R.I.B.A.)

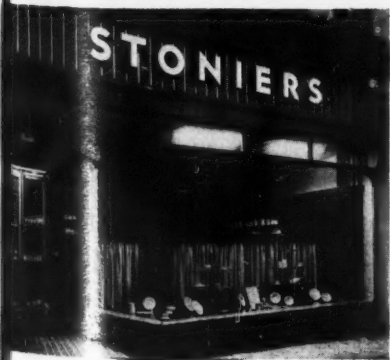
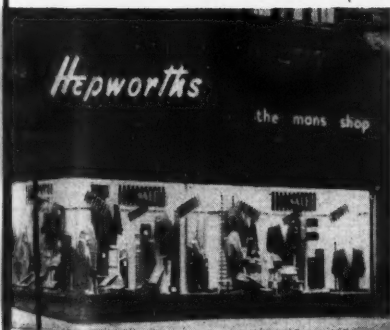
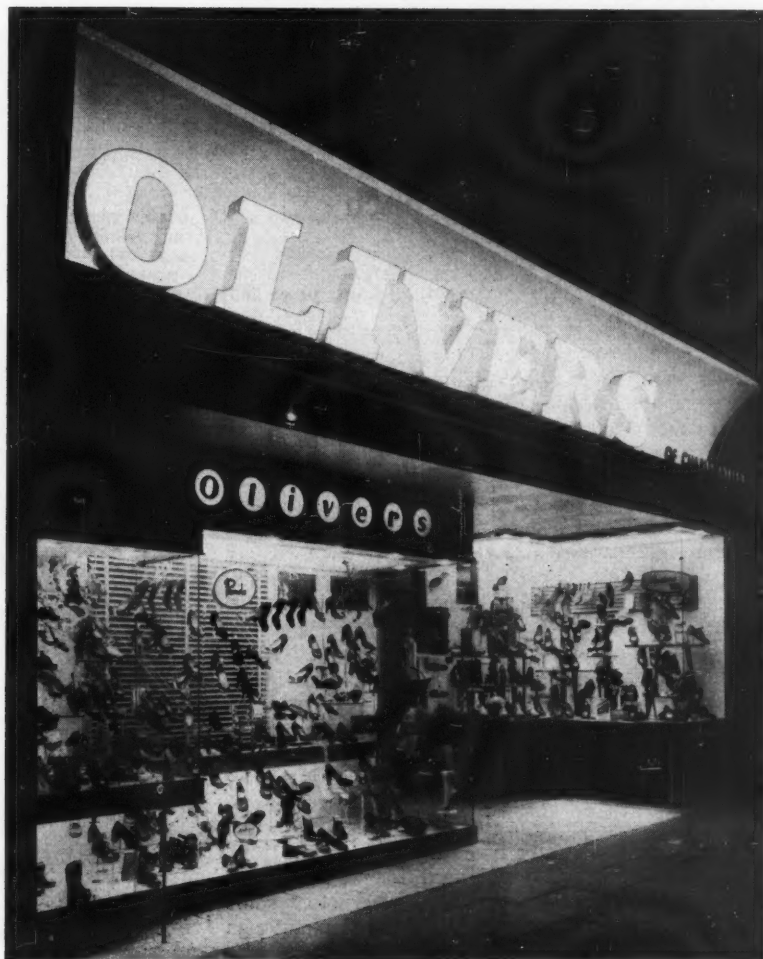
Left, the Wigmore Street (London, W.1) branch of Ryman's. The lettering of the main sign, which is mounted on a marble fascia, is made of primrose-coloured 'Perspex' (fronts and edges). Lighting, concealed within the lettering, is from primrose tubing. (Franco-British Electrical Co., Ltd.)

Below
Hepw
'Pers
of br
withi
white
Elect
potter
South
'Pers
have
opaqu
front
colour
face i
British
Below
Leices
an illu
of 'Pe
four r
tubing
tubing
trolled
appara
Neon



Above, "Supermarket," Richmond, Surrey. Bold italic letters, 1 ft. 9 in. high, are lit by a double line of jasmine-coloured tubing in the stepped edges. The letters, which have white fronts and yellow sides, are mounted on a fascia of dark-green marble. This is a standard sign, to be used by the firm at its various branches. (Claude-General Neon Lights, Ltd.)

Below, Leeds branch of Hepworth's. Letters have 'Perspex' faces, with returns of bronze, and are lit from within by double rows of pearl-white tubing. (Franco-British Electrical Co., Ltd.) Bottom, a pottery and glassware store in Southampton. Letters of 'Perspex,' lit from within, have their sides rendered opaque, so that during the day front and sides are the same colour, but at night only the face is illuminated. (Franco-British Electrical Co. Ltd.) Below right, shoe store in Leicester. Mounted in front of an illuminated cove are letters of 'Perspex' and metal lit by four rows of cold-cathode tubing. The cove is lit by tubing of various colours controlled by colour-change apparatus. (Claude-General Neon Lights, Ltd.)





Above, shops in Copenhagen. The metal fascia is decorated with a variety of signs in many colours, but is sufficiently dominant to hold the group together as a unified design.

Below, three projecting signs in London. From top to bottom (i) A black metal box with letters lit by a single line of yellow tubing. (ii) Letters of stove-enamelled aluminium lit by white tubing, on a background of sheet copper studded with 15-watt lamps. (iii) A simple sign painted red, black and white and illuminated from within.

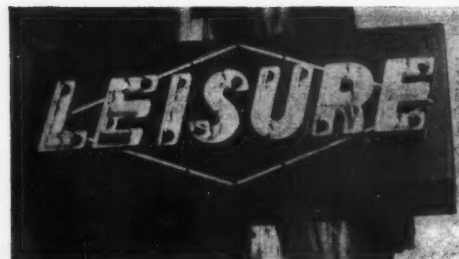
The architect's approach

(continued from page 263)

and office building the entire first floor of which serves as a background for a variety of neon signs relating to the ground-floor shops. In Vällingby—the showpiece of the new neighbourhoods around Stockholm—a specially designed canopy links all the shops (see illustration) and provides an excellent setting for an interesting and varied selection of signs—some lit artificially, some lit only by natural light shining through coloured plastic sheeting.

In Rotterdam and Coventry one can see other examples of galleries and canopies acting as backgrounds for signs, and the whole of the upper part of the Queen's Theatre which is to be re-built in Shaftesbury Avenue (architects, Westwood, Sons and Partners) is to be devoted to the display of theatrical signs. A rail will be provided at the top of the building from which cradles could be suspended, and the vertical members of the façade will be perforated to give convenient fixings in any position. (In the original theatre, an ornate classical façade fought a losing battle with the usual tangle of tubes and winking lights.)

The success of the individual sign is dependent not only on its design, but to a great extent on its position and on its relationship to the building on which it is fixed. While one can appreciate the need for uniformity in "house" signs, I would suggest that very often some sacrifice of uniformity is worthwhile if the resultant sign





The simple, but effective, sign used to indicate entrances to the Stockholm underground stations.

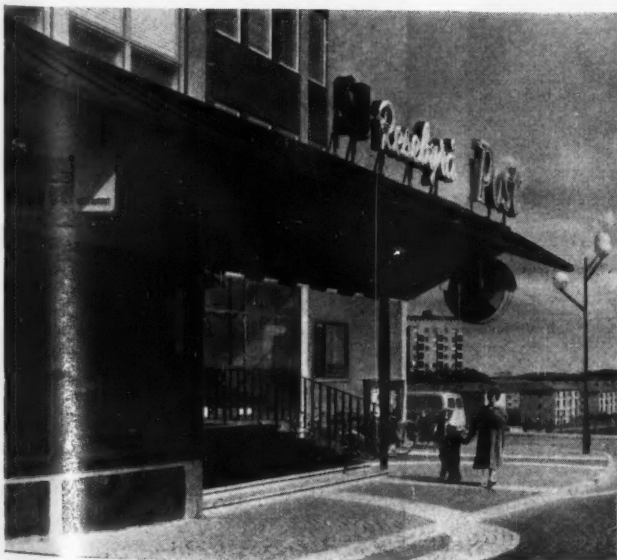
will be more effective in its particular position. Signs cannot be designed solely on the drawing board: the site should be looked at from all the viewpoints from which the public is likely to see the sign, and colours should be chosen with reference to the colours of the surroundings and of other signs in the vicinity.

If there are traffic lights nearby, it is important that there should be no confusion between these lights and the illuminated sign. Height and projection are usually controlled by local regulations, but there is no point in placing a sign where a projecting blind will obscure it in sunny or rainy weather.

Regarding detailed design, the following questions must first be answered:—

- (i) Is the sign to be equally important by day and by night?

At the shopping centre of Vällingby—Stockholm's newest suburb—the canopies are specially designed to accommodate the signs, which form an interesting collection of original designs. Some are illuminated; some are formed from sheets of stained glass; while others rely for their effect only on colour and imaginative form.



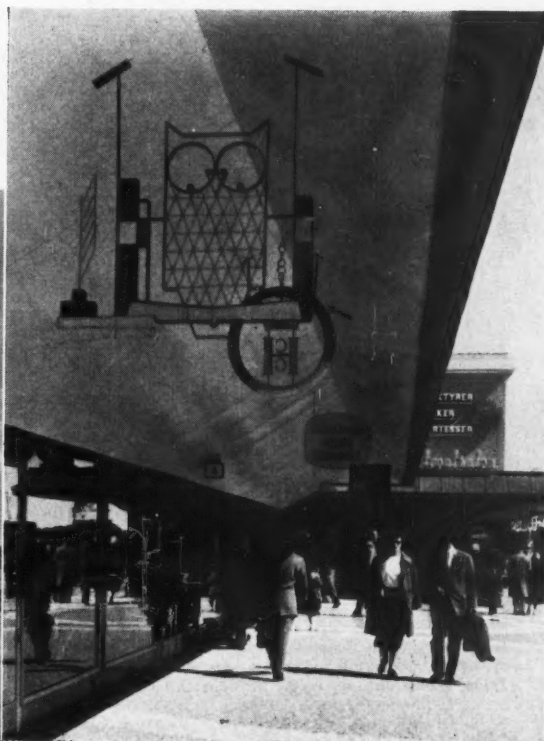
- (ii) Will it be lit all the time, or will it be in such a position that, during the day, colour rather than light will give the best results?
- (iii) What type of message must be conveyed—e.g. that this is a tailor's shop; that this is a branch of Austin Reed's; that here you eat a meal in elaborate surroundings; that here you can buy food; or that here you can buy Hovis bread?

Sometimes only one word is needed—the name of a chain store or the name of a branded product—and the client may require that the lettering should be in a house style. At other times, however, the design of the sign must contribute to the "message" and help to suggest exactly what type of goods are made or sold on the premises.

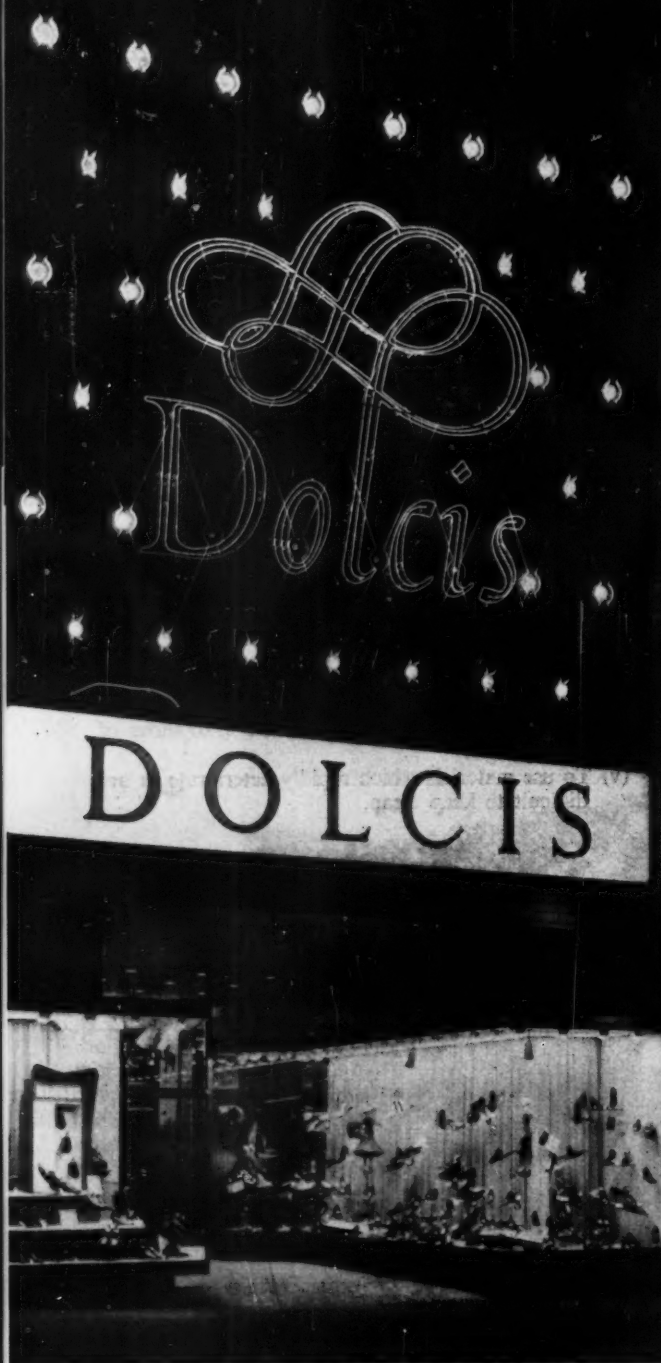
Whatever the "message," one cannot stress too strongly the value of *simplicity*. The sign is to be seen by the passer-by, and he should be able to receive an immediate impression from it, just as he does from the three balls of the pawnbroker's sign, the barber's pole or the letter "T" (for Tunnelbahn) of the Stockholm underground railway (see illustration).

Finally, it is worth listing what are, in my opinion, the five most serious faults which one should avoid:—

- (i) To cram too much lettering into the space available, so that seen obliquely it is just a blur;
- (ii) To cause confusion between solid letters and the letters of neon tubing applied to them;
- (iii) To choose an unsuitable background material that does not enhance the sign by night or by day;
- (iv) To use ineffective colours in relation to those of nearby signs;
- (v) To use materials which rapidly deteriorate or are difficult to keep clean.

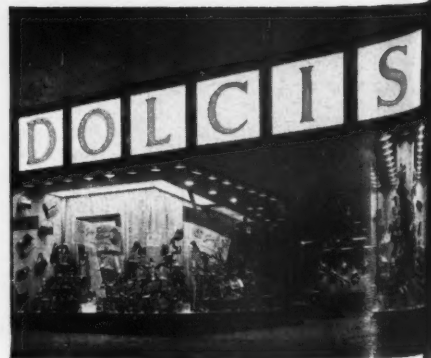
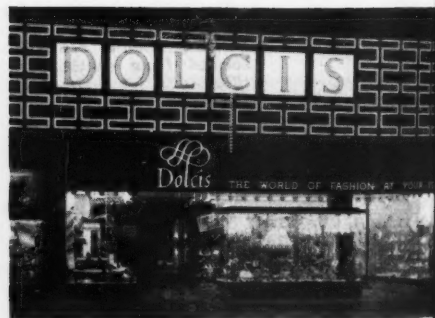


Right, four examples of accurately reproduced "house styles" of lettering: A Times Furnishing sign in Maidstone, outlined by rose-pink tubing. (Franco-British Electrical, Ltd.) A recently completed branch of Saxone, with black 'Perspex' letters silhouetted against 'Perspex'-fronted boxes concealing white tubing. A branch of Dorothy Perkins, with translucent lettering against an irregularly shaped luminous background—the colour being graded from white at the top to pink at the bottom to give "feminine appeal." (Pearce Signs, Ltd.) A standard sign for the well-known multiple tailors. It is to be made in a range of sizes, with 'Perspex' face concealing neon tubing and bevelled edges of stainless steel or bronze. (Modern Electric (Installations), Ltd.)



ILLUMINATED SIGNS: HOUSE-STYLE

The neon sign has played a big part in establishing the trademark of the Dolcis Shoe Company. Seen above is a branch of the firm in Montreal. The main name sign comprises translucent letters silhouetted against a luminous fascia. Above this, the trademark is outlined by three rows of tubing, against a background pattern of more tubing and flashing tungsten lamps. Seen on the right are two U.K. branches of the firm—Oxford Street (top) and Coventry. The large signs, in both stores, comprises 'Perspex'-faced letters seen against translucent panels lit by fluorescent lamps. The trademark on the fascia of the Oxford Street branch is of internally-lit 'Perspex' letters. (Montreal branch, Pearce Signs, Ltd.; U.K. branches, Courtney, Pope (Electrical), Ltd.; architect, Ellis Somake, F.R.I.B.A.)





'DESIGNED' LETTERING

Lettering specially designed in a style reminiscent of Arabic script has been used for this sign at the Piccadilly premises of the Egyptian State Tourist organisation. The letters, which are 2 ft. high, have fronts of green 'Perspex' and are lit internally by light-green tubing. Note the unusual position of the sign. (Claude-General Neon Lights, Ltd.: architect, Dr. Sayid Karim.)



3 Types of illuminated sign

By F. F. Newlands*

WITH most things in life it is function that determines appearance. Illuminated signs can be grouped into one of four categories according to function (i.e., identification, directional, advertising, and 'hybrid' signs), which not only help one to understand their particular use but also to appreciate why they look as they do.

There are, however, certain common points which must be considered when any type of sign is being specified or designed.

Letters

Are these to be made of wood, metal or 'Perspex'? If of wood what is the preferred section, e.g., open trough, inverted trough, stencil cut or stepped edge? What type of lettering is to be used? (Any type face can be reproduced by the sign-maker, and the customer may have his own characteristic lettering.) How big should the letters be?

Tubing

Having settled the type of lettering, the kind of tubing to be fitted to it has to be decided, e.g., single outline or multi-outline. Many types of lettering can only be reproduced by night if the tubing is fitted around the edge of the letter in at least double outline. On the other hand, single outline is suitable with simple block lettering and

has the advantage of greater legibility from a distance at night.

Tubing may be superimposed or recessed; the former is more suitable for long-range viewing and is more economical to make, whilst recessing improves close range appearance and legibility. With letters having translucent faces the tubing may have to be accommodated within the letters themselves.

Colour

Both day and night appearance have to be considered. The day-time (unlit) colour scheme should not be such that it adversely affects the lit appearance by night. At night the main requirement may be to achieve 'punch'; on the other hand softer colours may be required. If the designer has in mind to use red or green he must make certain that there will be no confusion on site with traffic signals.

Background

The nature of the material of the background must be known—is it, for example, suitable as regards non-inflammability? If a new background is to be supplied, e.g., for a fascia, what material is to be used?

Arrangement on the building

Matters which have to be considered under this heading include horizontal or vertical arrangement, projection, housing of the electrodes, transformers, cables, etc., and maintenance.

Legal requirements

Nearly every exterior illuminated sign requires what is in effect a licence. The designer must therefore be aware of the requirements of the Ministry of Town and Country Planning and those of the local authority in whose area the sign is to be erected.

Having dealt with the points common to all signs, the four types of illuminated sign can now be considered.

Identification signs

As every business house and undertaking has a name sign for identification this group is by far the largest, including signs for stores, cinemas, factories, railway stations, shops, hotels, etc. Points which the designer must bear in mind with any sign in this group include:—

- that the siting is such that it will identify the premises in the right direction and at the required range,
- that the siting does not conflict with the architecture of the building,
- that the customer's own style of lettering and colour scheme, if any, are incorporated,
- that the final result will be appropriate to the business concerned.

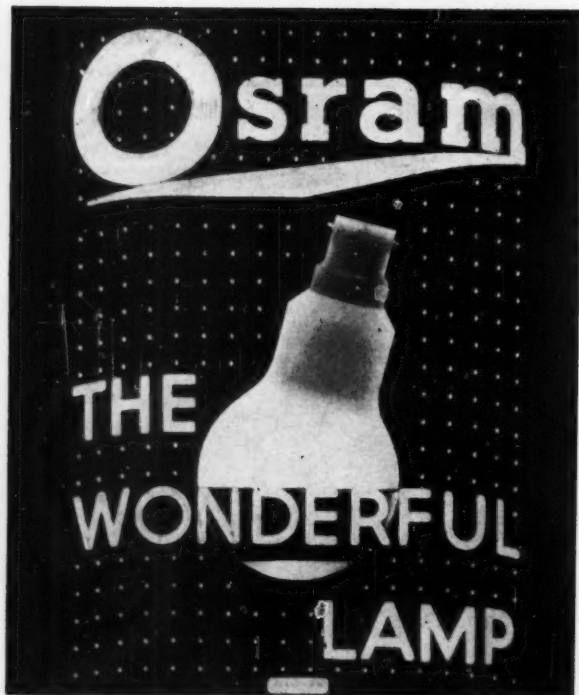
Directional signs

These signs are usually made to the cheapest possible specification and as a rule have little aesthetic appeal. Nevertheless, the sign-maker must ensure that

- the sign is well sited,
- the message is brief, clear and informative,
- legibility is high.

In addition, as such signs are usually quite small, their usefulness may be increased by flashing or intermittent lighting.

* Claude General Neon Lights, Ltd.



One of the signs at Piccadilly, this has a background of hundreds of small "winking" lamps. The lamp, which appears convex, is in fact concave—being made of plaster and lit from the sides by concealed fluorescent tubing. The letters are of open trough design with multiple rows of tubing.



Above, simple point-of-sale sign of stencil-cut type. The lettering is painted on the metal box, into the face of which the neon tubing is recessed. Right, seen from a distance, this lettering is outlined by tubing in a recessed edge and by a super-imposed tube at the centre. Yellow and white tungsten lamps flashing at random give the impression of drink being poured from bottle to glass.



Advertising signs

These signs can be further divided into those on rented sites (e.g., the signs in Piccadilly Circus) and those at the 'point of sale' (e.g., signs on shops).

It is with the former type that the sign-maker can really 'go to town.' Financial and aesthetic considerations are usually unimportant compared with the purpose of the sign, which is to put over the advertiser's message as forcefully as possible. Points which the sign-maker has to watch with such signs are as follows:—

- (a) the colour, intensity, animation and narrative of neighbouring competitive signs,
- (b) the nature of the product being advertised and any established method of advertising it in other media,
- (c) the size of the site and the range over which it can be seen,
- (d) the means (i.e., 'gimmick' or animation) to make it different from other signs,
- (e) the appearance by day,
- (f) the speed at which traffic normally passes the site (i.e., the time during which the sign will normally be visible to the passer-by),

- (g) that the vital part of the sign should be switched on at all times.

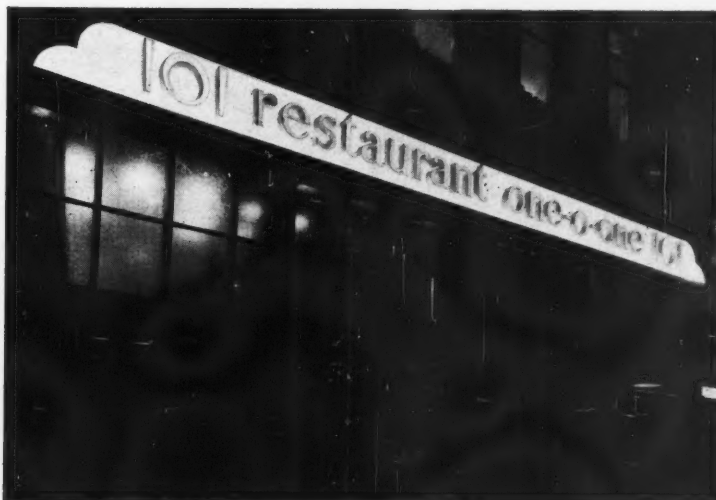
The 'point of sale' signs tell the public where they can buy particular goods, and are usually comparatively small signs on shop windows or fascias, or small box signs on brackets or poles. They have their own peculiar design problems, such as:—

- (a) the sign must not be so large that the retailers will not accept it nor so small that it is ineffective,
- (b) the shape must be suitable for wide application,
- (c) the sign must be self-contained and ready for connection to the supply,
- (d) it must be robust and simple in design so that it can be made in quantity,
- (e) the colours used must be attractive, but not such that colour distortion is caused in the window display.

The 'hybrids'

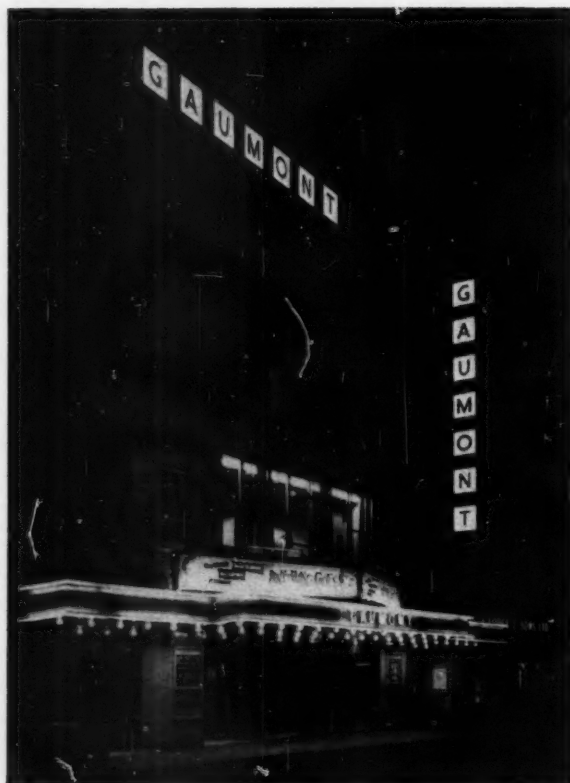
These signs usually combine to a greater or lesser degree the functions of the identification and advertisement signs. An example of this is the Lucozade sign.

Right, high-class Glasgow restaurant with 'Perspex'-faced lettering, internally illuminated by blue and red tubing, set against translucent fascia lit from behind by yellow tubing. Below, simple point-of-sale sign comprising cut-out 'Perspex' letters affixed to the opal 'Perspex' face of a box containing white fluorescent tubing.



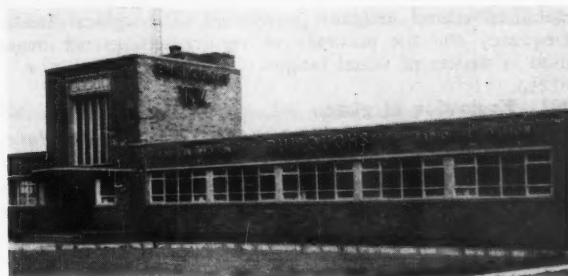
ILLUMINATED SIGNS: BY NIGHT AND DAY

Comparisons between the effects by day and by night of neon signs at a Peckham public house and the Gaumont cinema, Barnsley. At the King's Arms, the brewers' name consists of cream-coloured internally-lit letters against a blue background. The name of the house is of internally-lit 'Perspex'-faced letters fixed directly to the brickwork. (Pearce Signs, Ltd.; architects, Westwood, Sons and Partners.) At the Gaumont, Barnsley, two signs—one horizontal and one vertical—both consist of blue 'Perspex' letters, with bevelled and gilded outlines, fixed to individual diffusing panels lit by banks of hot-cathode fluorescent lamps. (Pearce Signs, Ltd.)



AT

Overlo
domina
brighte
Empire
Forte's
rant. It
a fasci
in heig
1,000
cathode
is lit
and m
colour
to the
Neon I



Two more day and night comparisons: more internally-lit 'Perspex'-faced lettering at a branch of a multiple tailoring firm, and open-trough lettering of cast aluminium at a radio and television factory. In the latter example, exposed tubing is housed in the troughs of the letters, which have bevelled and gilded edges. (Pearce Signs, Ltd.)

AT PICCADILLY

Overlooking Piccadilly, and dominated by one of the brightest of the Hub of Empire's many neon signs, is Forte's "Popular" restaurant. Its neon sign comprises a fascia, 43 ft. long and 6 ft. in height, lit by more than 1,000 ft. of white cold-cathode tubing. The lettering is lit by light-green tubing and more tubing of this colour is used as a border to the sign. (Claude-General Neon Lights, Ltd.)



Lighting Abstracts

OPTICS AND PHOTOMETRY

491. Great Britain and Continental Europe research on visual comfort. 612.843.3

R. G. HOPKINSON, *Illum. Engng.*, **52**, 247-252 (May, 1957).

Work on visual problems (excluding discomfort glare) currently being carried out in Europe includes studies on the appropriateness of lighting for its intended purpose and on adaptation effects and apparent brightness. Two experimental techniques are being used to examine the problem of eye movements and visual attention. A number of studies in this country and on the Continent have helped resolve the controversy on the use of fluorescent lighting. Work on the stabilised retinal image is mentioned. The critical fusion frequency and the accuracy of vernier settings are being used in studies of visual fatigue. E. P.

492. Evaluation of glare. 612.843.367
R. G. HOPKINSON, *Illum. Engng.*, **52**, 305-316 (June, 1957).

A simplified discomfort glare formula is considered in relation to the physical factors which determine glare. The method of experimentation is found to influence the exponents of these factors. A way is offered for using the formula which takes into account the difference in glare sensitivity between the general population and the laboratory team. The "additivity" of discomfort glare is considered and some recent studies on the subject at the Building Research Station are described. P. P.

493. A photoelectric telephotometer of high sensitivity and high angular selectivity. 535.24
F. C. CRANDELL and K. FREUND, *Illum. Engng.*, **52**, 319-322 (June, 1957).

In order to measure the luminances of small objects met with in night-time street lighting, a photoelectric telephotometer has been developed with an angular field which can be reduced to as small as $\frac{1}{4}$ minutes of arc and a luminance range which can be varied between 0.00001 and 1,000,000 foot-lamberts. The telephotometer employs a Cassegrain reflecting telescope and a photo-multiplier detector, and has a built-in radioactive comparison source. P. P.

LAMPS AND FITTINGS

494. Quick-starting fluorescent lamps. 621.327.534.15
G. HASSEL and D. CHRISTENSSON, *Ljuskultur*, **29**, 45-47 (No. 2, April-June, 1957). In Swedish.

The various methods available for quick-starting of fluorescent lamps are described, with circuit diagrams. New types of lamps and ballasts give better starting at lower temperatures, and run at a better power factor. R. G. H.

495. New U.V. radiators for use in analysis. 621.327
A. BJORKMAN and G. GUNTHER, *Ljuskultur*, **29**, 57 (No. 2 April-June, 1957). In Swedish.

The new U.V. lamps are described, one for mains and the other running off a 4.5v battery. Each unit contains two discharge tubes, the one for short-wave U.V. (2537Å)

and the other for long-wave U.V. (max. 3,600Å) one or other of which can be used at will. R. G. H.

496. Influence of starter on the life of low-voltage hot-cathode fluorescent lamps. 621.327.534.15
H.-D. ABERGER, *Lichttechnik*, **9**, 314-318 (June, 1957). In German.

The author has investigated the effect of over-voltage or low voltage, and of ambient temperature over the range - 25 deg. + 50 deg. C, on the starting of fluorescent lamps used with five different types of starter. The results are shown graphically and in general there is little to choose between the different starters as regards their performance. In all cases the life of the lamp is adversely affected by both low voltage and high voltage and by extremes of temperature. For instance, low voltage causes repeated attempts to start before the lamp lights, while high voltage gives rise to cold starting. J. W. T. W.

497. Measurement of electrical characteristics of fluorescent lamps. 621.327.534.15
W. R. BLEVIN, *Trans. Illum. Eng. Soc. (London)*, **22**, 164-174 (No. 6, 1957).

Discusses the changes which occur in the electrical and photometric characteristics of fluorescent lamps as a result of the connection of electrical measuring instruments and describes a new extrapolation method of determining the characteristics which the lamps would have if there were no measuring instruments in circuit. W. R.

498. Automobile headlamps: the ISO-CIE international tests and their influence on meeting beam design. 621.329
J. H. NELSON, *Trans. Illum. Eng. Soc. (London)*, **22**, 141-155 (No. 6, 1957).

Discusses the two major systems of meeting beam design, the Anglo-American and the European, and compares the two systems. Describes tests carried out under the joint aegis of the International Standards Organisation (ISO) and the International Commission of Illumination (CIE), the outcome of which is the New United European Beam which, while still differing from the Anglo-American school, nevertheless represents an advance towards ultimate agreement between the two schools. A particular factor emerging from these tests is the recognition of the overwhelming importance of lamp aiming, and the clear call for vehicle inspection. W. R.

LIGHTING

499. The lighting of football grounds and skating rinks. 628.977
G. HASSEL, *Ljuskultur*, **29**, 35-40 (No. 2, April-June, 1957). In Swedish.

The lighting of large sports arenas is discussed both in terms of general principles (levels of illumination, etc.) and specifically in terms of placing of lighting units and types to be used in given situations. Arenas are divided into four

classes, from the great metropolitan stadiums to small local training grounds, and recommendations for lighting of each type are related to the probable amount of capital available for the installation.

R. G. H.

- 500. Light, place and mood.** 628.972
L. SCHNEIDER, *Ljuskultur*, 29, 41-44 (No. 2 April-June, 1957). In Swedish.

The ergotropic (action) condition and the histotropic (relaxation) condition of the human being call for entirely different lighting treatment. The eye may in fact behave in a different way in each condition, similar to the variation with time of year of the Y/B ratio (visual spectral sensitivity) established by Dresler. Arguing from this basis it is advised that lower levels of illumination are desirable in the evening, in social environments, etc.

R. G. H.

- 501. Luminous ceilings in classrooms for partially sighted children.** 628.978

Ljuskultur, 29, 44 (No. 2, April-June, 1957). In Swedish.

Two classrooms in the Gustav Vasa school (secondary modern type) at Stockholm have been provided with vinyl plastic ceilings lit by warm white fluorescent lamps, for children with low visual acuity (about 10 per cent. of normal vision). Special furniture has also been designed to enable correct eye-work distances to be achieved.

R. G. H.

- 502. Lighting in a new hospital in Finland.** 628.978
E. PAIVARINNE, *Ljuskultur*, 29, 48-51 (No. 2, April-June, 1957). In Swedish.

The lighting in the Central Finland hospital at Jyväskylä follows interesting principles. A combination of direct and indirect light is employed because totally indirect light is believed to be irritating to bedridden patients. The bedside lamps are each provided with two lamps, one for reading and one for night lighting.

R. G. H.

- 503. Lighting of large workshops with and without rooflights.** 628.972
I. SJOLANDER, *Ljuskultur*, 29, 51-54 (No. 2, April-June, 1957). In Swedish.

The importance of inter-reflected light in the daylighting of factories is stressed. The placing of banks of fluorescent lamps should follow the direction of the daylight rooflights to obtain the same light distribution by night as by day. The cost of lighting and maintenance is discussed; glass blocks have advantages in maintenance since they need less cleaning by reason of a silicon surface layer which repels dirt.

R. G. H.

- 504. Problem of perception when viewing a street at night.** 628.971.6
L. FINK, *Lichttechnik*, 9, 309-312 (June, 1957). In German.

This paper deals mainly with the psychological aspects of night driving. The driver depends for guidance on the picture he forms of the street ahead of him and he can be either correctly guided or misled. The main technical problems of street lighting have been solved but there remains the problem, mainly one of planning, to ensure that the picture presented to the driver gives him at once and unmistakably the information he requires.

J. W. T. W.

- 505. Fundamental ideas in illuminating engineering.** 628.9
M. ROESGEN, *Bull. Assn. Suisse Elect.*, 48, 593-597 (June 22, 1957). In French.

A brief treatment of the underlying facts of vision is

followed by sections dealing respectively with photometric quantities and their units and the laws of photometry. The second part of the paper is concerned with light sources. After a discussion of the laws governing full (black body) radiation, the author describes the phenomena of the electric discharge and concludes with a brief reference to the fluorescent lamp.

J. W. T. W.

- 506. Lighting traffic tunnels and underpasses.** 628.97
Illum. Engng., 52, 325-335 (June, 1957).

These recommendations of a Sub-committee of the American IES deal with the basic objectives in lighting tunnels and underpasses, and with their achievement in terms of illumination levels and surface finishes. A minimum average maintained luminance of 3-3.6 foot-lamberts should be aimed for. At tunnel entrances the outside-to-inside luminance ratio should not exceed 15 to 1. A 15-second adaptation period should be allowed for in providing supplementary lighting at the entrances. The length of tunnel so treated thus depends on the vehicle speeds to be catered for. Details are given of the lighting of 12 major traffic tunnels in the United States.

P. P.

- 507. Eight articles on special applications of lighting.** 628.97
Lichttechnik, 9, 359-369 (July, 1957). In German.

(1) Lighting of the concert hall of the Berlin musical academy, by B. WARSINSKI, pp. 359-361.

(2) Sodium lighting in workshops with sandblasting equipment, by K. SCHWENKE, p. 362.

(3) Lighting of ovens and steam chambers in plywood factories, by H. GROSS, pp. 362-363.

(4) Local lighting for large power presses, by W. SCHRAMM, p. 364.

(5) Artificial lighting for the grading of cotton, by H. HOLSMOLLE, pp. 364-365.

(6) Lighting of liquid level indicators with explosion-proof fittings in chemical works, by W. SCHRAMM, pp. 365-366.

(7) Construction and use of very high pressure mercury vapour lamps, by F. TANNER, pp. 366-368.

(8) Football ground lighting at Medellin, Colombia, by W. J. P. WERNZ, p. 369.

The new concert hall described in (1) has a seating capacity of 1,500. The ceiling is of special form and the lighting has been adapted to the construction. The lighting load is 120 kw. and the illumination of the floor 15 to 18 lm/ft². On the platform it is 40 on a horizontal surface and 10 on the scores. The installation described in (2) is in a windowless workshop.

A combination of sodium and fluorescent is used in (3) and the illumination is between 1 and 5 lm/ft². The sodium component is especially useful in steamy atmospheres. The local lights described in (4) are fluorescent. Article (5) describes colour matching units, each containing six daylight fluorescent lamps (total 160 w.), two actinic-blue fluorescent and four reflector tungsten lamps.

The need for vapour proof fittings for the gauges described in (6) arises from the fact that the liquids are often inflammable. The lamps referred to in (7) are water-cooled and may be used for general outdoor lighting (e.g. in shipyards) or in projection apparatus (e.g. in gauge inspection or for determining cloud heights). Article (8) is properly a supplement to the series of seven articles on sports lighting previously published (see Abstract 473).

J. W. T. W.

Penberthys' Department Store, Oxford St., W.1.

Architects, C. Edmund Wilford and
Son, F./A.R.I.B.A.; electrical
consultant, T. Dunwoody, Assoc.I.E.E.



REPLACING premises destroyed by enemy action during the war, Penberthys' new building is on the south side of Oxford Street, London, W.1, about one quarter of a mile from their original home. The site has a frontage of about 72 ft. and the building is approximately 115 ft. deep. Ground floor, lower ground floor and first floor are occupied by the store, which has about 20,000 sq. ft. of sales floor, while there are four storeys of offices above, mainly for letting.

The building has a steel frame; the floors and roof are of solid reinforced concrete and the external cladding to the main street façade is of glass curtain walling, apart from a vertical area of faience tiling from which a 'fin' sign projects. Other cladding is of brickwork. Heating is by ducted hot air, heated by water from an oil-fired boiler, and filtered and washed before distribution. Two

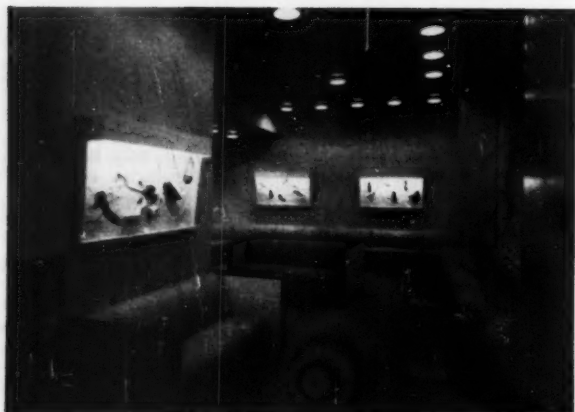
escalators have been provided—one 'up,' from ground to first floor; one 'down,' from ground to lower ground floor.

The sales and other departments are distributed as follows: *lower ground floor*, shoes, hairdressing, lingerie, corsetry, children's wear and household linen; *ground floor*, jewellery, scarves, handbags, gloves, hosiery, sportswear, 'separates' and swimwear; *first floor*, gowns, suits, coats, furs, rainwear and bridal-wear.

Lighting

The ground floor and the main part of the first floor have ceiling grids of trapezium-shaped mild-steel channelling, rust-proofed and painted, which serves as ducting for the electric wiring. This channelling supports easily removed panels of reinforced plaster and two types of panel incorporating lighting fittings—(i) Panels housing four 40-watt fluorescent lamps, covered by obscure glass; (ii) panels containing two, three or four eyeball-type spotlights, each housing a 150-watt tungsten lamp. Connections to the supply (as throughout the building) are by plugs and sockets, to facilitate the rearrangement of the lighting panels and the ordinary ceiling panels as the layout of the store is changed.

In the lower ground floor, fluorescent fittings similar



Top, the main elevation of the store, seen from across Oxford Street. Tungsten lamps are recessed into the soffit of the entrance lobby to give "sparkle." Left, the simply arranged shoe department, lit by 150-watt tungsten lamps in glass-covered fittings semi-recessed into the ceiling.

Below
show
chang
house
obscu
contai
ing 15
left a
into t
lation

Right, hairdressing salon lit by a combination of tungsten and fluorescent lamps, mainly in semi-recessed ceiling fittings. Showcases are lit by fluorescent lamps concealed behind perforated pelmets. As a safety precaution, pendant switches are used in this department.



Below, gown department on first floor, showing suspended ceiling with interchangeable panels, some of which house fluorescent lighting fittings with obscure glass covers, while others contain eyeball-type spotlights housing 150-watt tungsten lamps. On the left are rows of downlights recessed into the ceiling concealing the ventilation ducting.



to those described above are semi-recessed into the ceiling. They are easily removable and can be replaced either by panels housing spotlights or by plain cover panels. A low-ceilinged area under the escalators is lit by semi-recessed downlights, each housing a 150-watt tungsten lamp and fitted with a dished glass cover.

Around the periphery of each floor, similar downlights are semi-recessed into the suspended fibrous plaster ceiling that conceals the sheet-steel ventilation ducting, and they are used also in those departments where tungsten light is considered preferable to fluorescent—the hair-dressing salon and the jewellery and shoe departments.

The front of the first floor is treated as part of the window display (and is switched with it), so that from the street the 'shopfront' appears to extend the full height of both ground and first floor. Luminous beams, 6 in. wide and at 4-ft. centres, are lit by fluorescent lamps covered by obscure glass set flush with the ceiling, while immediately adjacent to the window two rows of cold-cathode tubing serve to define the upper extremity of the shopfront.

The window itself is lit by fluorescent lamps in fittings fixed directly to the soffit and concealed by simple wooden baffles. Extra light comes from internally silvered spot-lamps and from low-voltage spotlights with highly polished aluminium reflectors, some of which are anodised in bright colours.

For the direct lighting of displays in the lower ground floor and the front part of the first floor there are sockets in the ceiling, at regular intervals, into which can be inserted specially adapted adjustable spotlights with coloured spun-metal reflectors.

The fur department is lit by cold-cathode tubing;

fitting rooms are lit by wall brackets—two in each room, with 40-watt tungsten lamps in plastic shades; and show-cases around the walls are mostly lit by fluorescent lamps concealed by pelmets. Free-standing showcases are also lit by fluorescent lamps, each unit having a built-in socket for connection to the supply, while the showcases in the corsetry department are lit by tungsten lamps.

The escalators are lit by cold-cathode tubing recessed into the balustrades and covered with obscure glass, and socket connections are provided near all internal signs so that they can be lit if required.

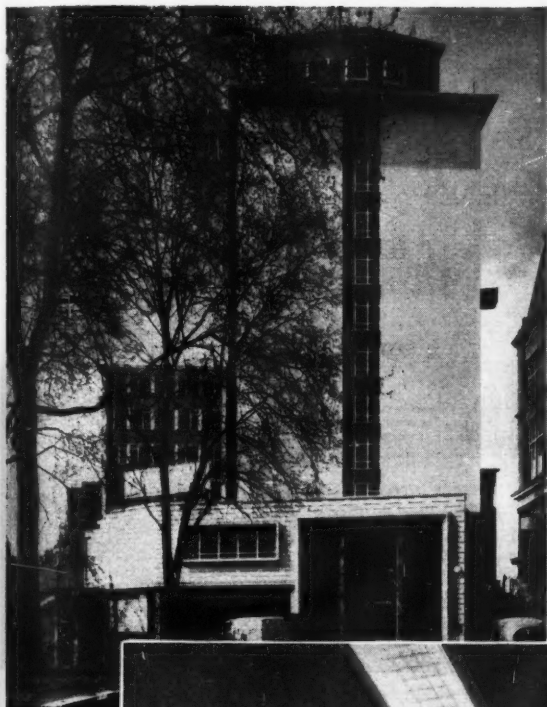
Illumination levels aimed at (and achieved) are as follows: lower ground floor and first floor, 35-45 lm/ft²; ground floor, 45-55 lm/ft². The electrical installation was carried out by Barlow and Young, Ltd., lighting fittings being supplied by Courtney, Pope (Electrical), Ltd., S.L.R. Electric, Ltd., E. Pollard and Co., Ltd., Heal and Son, Ltd., Walsall Conduits, Ltd., and Pearce Signs, Ltd., who also made the fascia sign and the projecting sign.



Above, lighting of escalator by cold-cathode tubing recessed into the balustrade and covered by obscure glass. Left, lower ground floor looking towards lingerie department. Removable fittings housing four 40-watt fluorescent lamps are semi-recessed into the ceiling. Around the periphery are 150-watt tungsten downlights with dished glass covers.

COURTNEY, POPE

THE LIGHTING SPECIALISTS



CALTEX HOUSE, occupied jointly by Messrs. Caltex Services Ltd. and Messrs. Albright & Wilson Ltd., is fitted throughout with the Burgess Metal Suspended Modular Ceiling utilizing some 2500 specially designed FX 277 lighting fittings. The FX 277 clips onto the "T" framework of the special ceiling, unaided by further suspension, and providing complete flexibility of design should subsequent alterations be made.

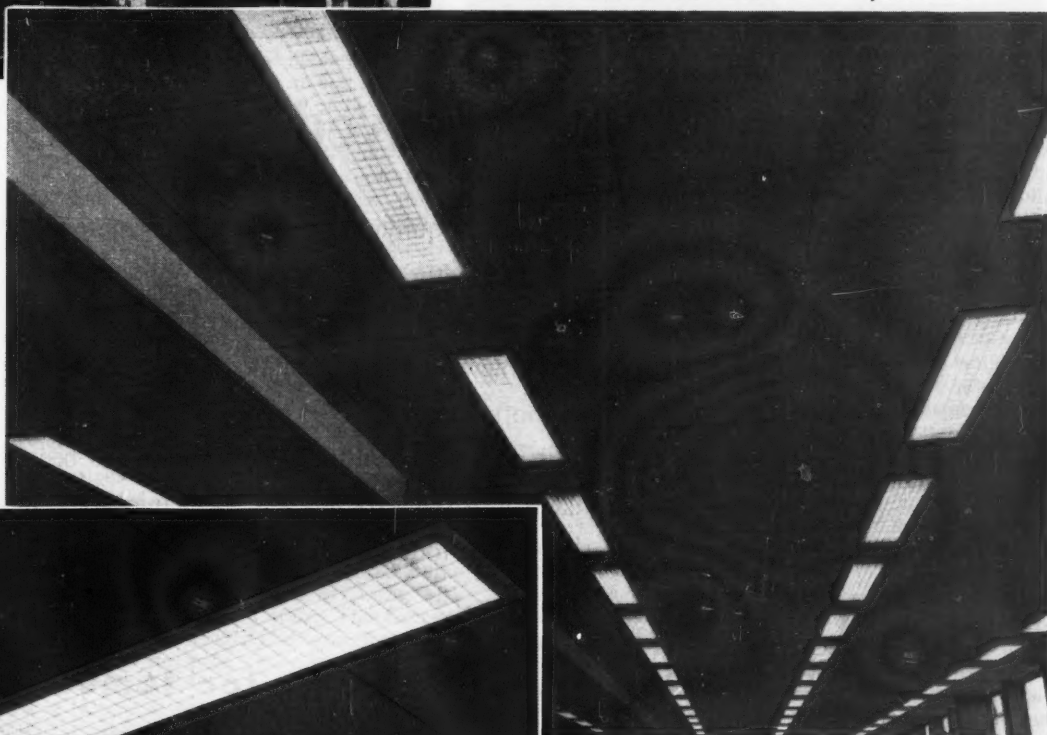
The Caltex House scheme is typical of many similar large office installations designed, by the Courtney, Pope Lighting Service, involving complete co-operation in the solution of lighting problems and the installation of special lighting fittings.

CALTEX HOUSE

General Contractor & Electrical Consultants:
Sir Robert McAlpine & Sons Ltd.

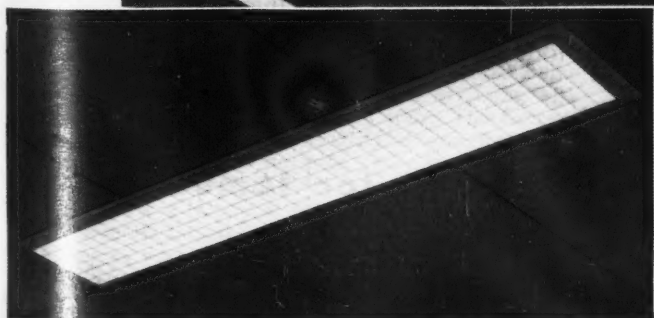
Electrical Contractors:
Edmundson Construction Co. Ltd.

Architects:
E. A. Stone, Toms & Partners & R. H. Andrews-Jones & Son



Interior of general office showing ceiling and lighting installations.

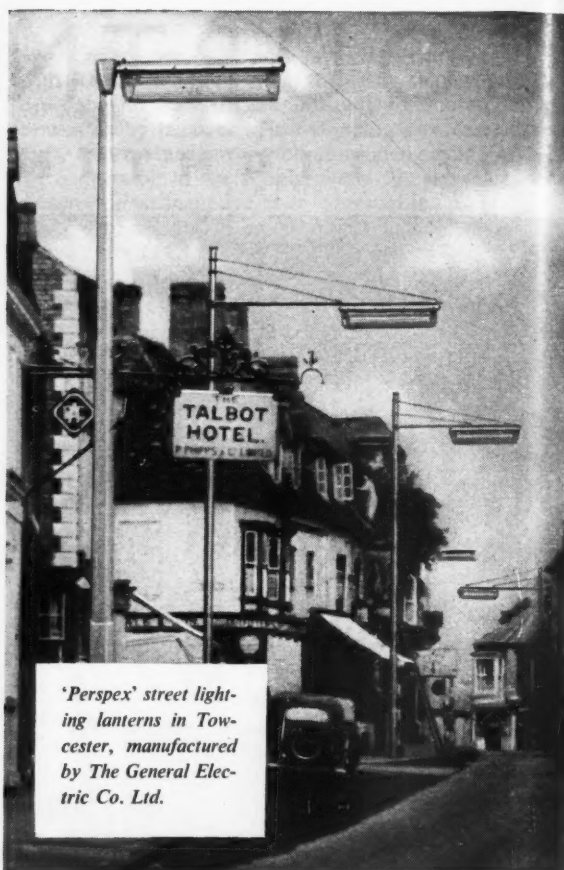
(Inset) FX 277 Fitting.



COURTNEY, POPE (ELECTRICAL) LTD., AMHURST PARK WORKS, TOTTENHAM, LONDON N.15. (STAMFORD HILL 4266)



'Perspex' sheet lighting fitting reflectors in the Scafield Mills of R. Laidlaw & Son Ltd., Keith



'Perspex' street lighting lanterns in Towcester, manufactured by The General Electric Co. Ltd.

'Perspex' the proved material

EVERY LIGHTING ENGINEER installing equipment made from new materials wonders how they will be affected by the passage of time. Will efficiency be maintained? Will discolouration occur? He need have no fears with 'Perspex' acrylic sheet. Still a 'new' material to many, it has stood the test of 10 years use both indoors and out.

At home and abroad, on land, sea and in the air, 'Perspex' has been proved in service. Free alike from discolouration, and mechanical degradation, 'Perspex' fittings are as good today as the day they were installed.

'PERSPEX' today – for tomorrow

'Perspex' is the registered trade mark for the acrylic sheet manufactured by I.C.I.

IMPERIAL CHEMICAL INDUSTRIES LIMITED · LONDON · S.W.1



Association Française des Eclairagistes at Lyon

The conference of the AFE at Lyon from June 18-22 fulfilled all the expectations of the participants. The tropical heat ensured a remarkably complete attendance, for the Theatre des Celestins, where the meeting was held, was the only place above ground in Lyon where the temperature was less than 100 deg. F. The organisation of the meetings, technical visits, and discussions was as always impeccable, and congratulations are due to M. Armand Vallat, M. Bied, of Lyon, and their colleagues and assistants for the excellent arrangements. Delegations came from 15 foreign countries, including Poland, Iceland and the USSR. The British delegation not only survived the heat to put in a 100 per cent. attendance, but managed to break the language barrier on several occasions to intervene in the discussions. The opportunity was also taken to hold meetings of the CIE Working Parties on Street Lighting and on Lighting of the Environment.

On Wednesday morning, June 19, following an introduction by the Mayor of Lyon and the president of the Society, M. Deloos, a session was held on factory lighting with special reference to security and production. M. A. G. Levy summoned evidence to show that more accidents occur under artificial lighting conditions than under daylighting, and that these accidents can to a large extent be eliminated by a provision of good artificial lighting. He also produced some interesting figures to show that accidents could be reduced still further by the application of what he called "functional colour." On the use of fluorescent lighting in factories he claimed that there was ample evidence that no visual harm resulted from its use but that lighting engineers still had a great deal to do to improve its quality.

M. Armand Vallat followed with a paper on the relation between production and lighting in industry. His paper dealt very fully with studies undertaken in Great Britain by the IES, the MRC and the DSIR. He referred also to comparable work in the USA and in Germany. The German work indicated that production increased to a level of illumination up to about 200 lm/ft². Visual fatigue was said to decrease to a minimum at about 100 lm/ft² but to increase again if the level is raised to 200. This surprising conclusion requires some confirmation before it will be generally accepted.

In the discussion on these two papers an interesting comment was made by Professor Jurov, of the USSR, who said that Russian studies had indicated that an appreciable increase in production resulted from better lighting. Fluorescent lighting could have a stimulating effect on the worker. On the subject of windowless factories it was clear in this and in discussions later in the conference that they are likely to be a centre of controversy in France, as elsewhere, because of the inherent dislike on the part of most people for the shutting out of the natural environment.

On Wednesday afternoon a most interesting paper fully illustrated with excellent colour slides was given by M. Cascio, of the Olivetti Organisation in Italy. The factory buildings illustrated in this communication were the exact reverse of the windowless factories. Very large windows giving full visual access to the almost rural environment of the factory were a feature of the design.

Following M. Cascio's paper M. R. Nampon discussed the lighting of working-class houses. This type of housing has been designed to rent at a very low figure and so the cost of the lighting must be kept to a minimum. M. Nampon

made various suggestions for the improvements for the present standards.

The Thursday session was of special interest to those concerned with the lighting of factories. Dr. Meisser gave a particularly well-illustrated summary of factory lighting in Germany. He emphasised the importance of attaching a greater significance to the distribution of luminance in the field of view in order to avoid all glare, to the diffusion to light and to other architectural and physiological problems. He illustrated his points with a number of entertaining colour slides of high quality. Special attention has been given to the design of lighting fittings which would resist corrosion in chemical factories. Considerable use of translucent plastic reinforced with glass fibres had been made in this connection. One development of some interest was the extensive use of fluorescent lamps at high voltage in East Germany. The lighting of textile factories was then discussed by M. Blot. Levels of lighting of the order of 20 to 40 lm/ft² are becoming common and in general the tendency is towards the employment of fluorescent lamps at low voltage. Perhaps the most important problem in the textile industry is the growing tendency to design a factory totally enclosed, without windows, in order to be able to control the environment (temperature, humidity) to a high degree of precision. An excellent technical solution results but human reactions are often unfavourable. No general conclusions can be drawn at the moment, but the disadvantages of "blind factories" in situations where the personnel are largely feminine were stressed. Hysteria or panic could easily result and one recommendation was made that such "blind factories" should be reserved solely for processes where the very greatest of importance must be attached to a constant environment (temperature, humidity, etc.), and preferably that they should be confined to industries where the personnel was entirely male. The use of "symbolic windows" in such factories was one of the recommendations made in the discussion. The same problem was discussed by M. Henri-Martin in a paper dealing with the lighting of automobile factories. The most common method of lighting such factories is by means of fittings each of which contains two lamps on a lead-lag circuit, alternate rows of lamps being linked to different phases. Sodium lamps and mercury lamps with a fluorescent envelope are also used, but less frequently than fluorescent lamps. Filament lamps have been almost eliminated from modern factory lighting. Illustrations were given of special forms of lighting for certain operations, such as car body painting or assembly work; such local lighting cannot, of course, enhance productivity because the assembly moves at the speed of the conveyor belt. The better lighting does, however, assist the well-being of the workers.

The afternoon of Thursday was devoted to the problem of mixed artificial and natural lighting. Dr. Escher-Desrivieres and M. Barthes gave a description of an experimental study on mixed lighting in modern factories. Dr. Escher's paper was devoted essentially to an explanation of the advantages of semi-diffusing materials in factory roofs. The most important feature of M. Barthes' work was the use of supplementary artificial fluorescent lighting as local lighting to enhance the illumination of certain processes in an automobile factory where the natural lighting

is often inadequate. The lighting of heavy presses for motor-car bodies can be considerably improved in this way. In M. Barthes' view, natural lighting in a factory is essentially lighting of the environment, and artificial semi-localised or localised lighting is necessary in order to ensure correct visual conditions on certain jobs for most times of the day. General artificial lighting is insufficient. Dr. Hopkinson described experiments recently conducted at the Building Research Station to improve lighting in schools and offices. He advanced the view that, once it is accepted that windows do not have to be designed to throw their light to the remoter parts of a room, sky glare can be eliminated in a more satisfactory manner than has previously been possible.

The Friday sessions were devoted to some rather more theoretical problems. M. Janin discussed recent developments in fluorescent materials for the coatings of tubular lamps, in relation to recent theories of the solid state.

The second paper, by M. Terrien, discussed recent work on the primary standard of light undertaken in France, and the progress of the work now going on to implement the resolution made at the CIE meeting in Zurich, 1955, which recommended the exchange of fluorescent lamps between laboratories in order to standardise on photometric and colorimetric measurements with the hope that eventually sub-standards may be made available in all countries. The third paper was a description by M. Leusinger on current techniques in the Central Laboratory of the Electrical Industries of France.

The afternoon session of Friday was devoted to hospital lighting. M. Pages discussed the theory of visual comfort put forward by Logan and described how this could be applied to hospital lighting. M. Bergier devoted special attention to operating theatre lighting fittings. M. Salomon discussed the same problems as M. Pages but from a different point of view.

Among those joining in the discussion was Mr. Waldram, who discussed the design of operating theatre fittings in relation to both the central task and the surroundings. M. Riemann gave an illustrated resumé of techniques of the use of ultra-violet radiation in Germany, and Dr. Hopkinson illustrated the artificial lighting in hospitals in terms of ambient and character with several coloured slides.

The final session on Saturday morning was devoted to a summary of the main points of the conference, which was given admirably by the president of the Society, M. Delooz. This was followed by a remarkable tribute to the skill of the lighting engineer by the Director of the Celestin Theatre of Lyon, M. Gantillon, who illustrated his points by some demonstrations of the versatility of the lighting installations and the lighting technicians of his theatre. He showed how the standard of acting could be profoundly influenced by good or bad lighting, and how both scenery and costumes had to be designed in relation to the lighting which they would receive. A theatre audience takes so much for granted, and is so absorbed in the excitement of the play, that the finer point of lighting and decor are all too often missed. Those who heard M. Gantillon were enchanted by the subtleties of which the skilled lighting director is capable.

The AFE is famous for the care and thought which is put into the organisation of its meetings. The Lyon meeting was undoubtedly one of the most successful of the post-war conferences organised by the Society. The distractions as usual left an unforgettable memory. Perhaps the most memorable from the lighting point of view was the spectacle of the Paris Opera Ballet performing in the ancient Roman amphitheatre of Lyon before a packed audience of several thousands. One could not help being reminded once again, when seeing the brilliantly coloured spectacle floodlit against

the inky background of the dark night sky, how colourfulness as well as brightness is enhanced by contrast with a dark background. Very soon, however, such technical musings were completely forgotten in the wonderful spectacle itself.

The conference ended with lunch at the Casino of Charbonnières. Some of the delegates, however, stayed to the Saturday evening visit to the mediaeval city of Perouges. Here, as in Lyon itself, modern lighting technique allied with the ancient buildings of France, produced an unforgettable spectacle.

Book Review

"Control Gear and Circuits for Fluorescent Lamps," by C. H. Sturm. Third edition. Pp. 332; Figs. 193; Tables 67. (In German.) Published by G. Kober, Mannheim. Price DM 5.25 (9s. 6d.).

The second edition of this very useful book was reviewed in *Light and Lighting* in September, 1954. The present edition has been enlarged by some 70 pages and accounts of various recent developments have been included. For instance, there is a description of the lately introduced electromagnetic starter and a section dealing with auxiliaries for use in situations where there is risk of explosion, while the section dealing with starterless control has been expanded and brought up to date. The author does not attempt to deal at length with lighting design but he gives a brief outline of the subject with a number of tables reproduced from the various relevant German standards. The book can be recommended as a valuable and reliable guide to the control and operation of fluorescent lamps. J. W. T. W.

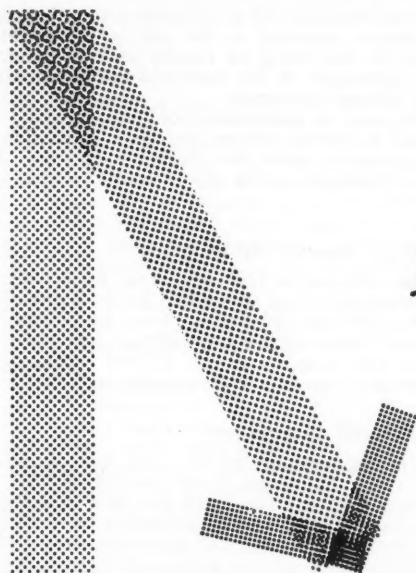
DIE-CAST SWIVEL JOINTS



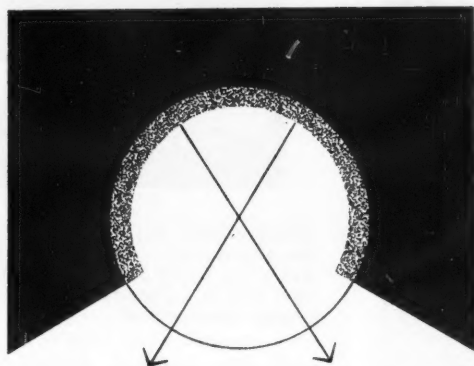
**FOR SPOT LIGHTS
DESK LAMPS
DISPLAY LIGHTING, ETC.**

ASK FOR PUBLICATION 169

ROBBINS & BRADLEY LTD.
7/10 TENNANT ST. BIRMINGHAM 15
MIDLAND 2353/4/5



How much light
are you wasting
through dust?



This cross-section of a "Reflectalite" tube shows the diffusing, reflecting layer of powder inside the glass, which covers approximately 240° of the circumference.

From the day it's installed, the normal fluorescent tube steadily loses efficiency. Why? Because it is almost impossible to prevent dust and dirt from settling on the top and sides of the tube. Impossible, that is, without very frequent cleaning and the additional cost it entails.

Philips 'REFLECTALITE' puts an end to all that

"Reflectalite" is a fluorescent tube with a built-in reflector. Two-thirds of the tube — that 240° segment where dust and dirt most easily settle — are internally coated with a special powder prior to the application of the normal fluorescent phosphor. The majority of the light output from the tube is therefore reflected down through the 120° "window", as shown in the diagram.



PHILIPS Reflectalite

FLUORESCENT REFLECTOR TUBE

For fuller details send coupon today to :

PHILIPS ELECTRICAL LIMITED • Lighting Division
Century House • Shaftesbury Avenue • London • W.C.2

NAME _____

ADDRESS _____

PHILIPS Reflectalite

LL/AG/57

- * **Cuts out light wastage through dust collection**
- * **Gives extra light in the useful direction**
- * **Reduces the maintenance bill**
- * **Tube costs little more than ordinary fluorescent**

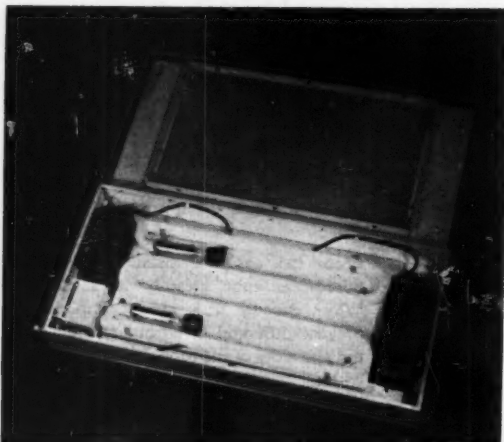
PHILIPS ELECTRICAL LIMITED • LIGHTING DIVISION
CENTURY HOUSE • SHAFTESBURY AVENUE • LONDON • W.C.2
(LD2081Q)

NEW PRODUCTS

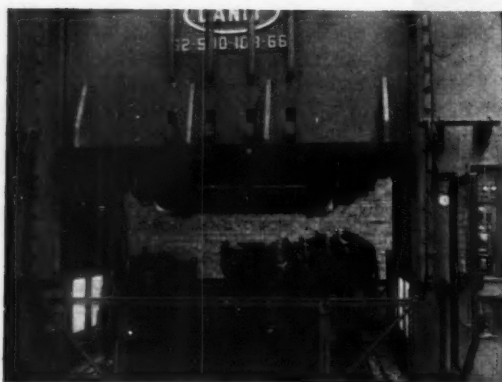
Die press lighting unit

AEI Lamp and Lighting Company, Ltd., announce a new Die Press Lighting Unit, made to order for the Danly Machine Specialties Inc. for use in their various types of heavy duty presses and available to any press manufacturer on bulk order.

The unit was developed to light the die platform of presses during the initial setting up of the tools and to assist the accurate handling of material during operation. External lighting being easily obstructed by the press itself, its



Die press lighting unit showing the 75-watt cold cathode fluorescent tube arranged as a four-leg grid.



Units installed in a Danly 500-ton press at Briggs Motor Bodies Ltd.

operators, materials and tools, the best location for lighting units was within the press, on the pillars. Whilst a reasonable area was available, there was little depth, and the units, only 2½ in. deep to avoid fouling the descending tool-plate, are attached to permanently fixed mounting strips from which they can be removed or re-inserted when necessary.

Since the lighting units are in the view of the press operator, excessive brightness had to be avoided, and this was achieved by the use of a specially made 75-watt "New Warm White" cold cathode fluorescent tube of 20-mm. diameter, arranged as a four-leg grid, and screened by an internally reeded panel of light opal plastic.

The robust cold cathode tube was also chosen for its long life when subjected to the heavy vibration caused by

the press working, and as an additional anti-shock safeguard the lamp is mounted in the unit on a separate platform, secured to the fitting by impact resistant mountings which limit movement of the platform and safeguard the lamp from internal movement.

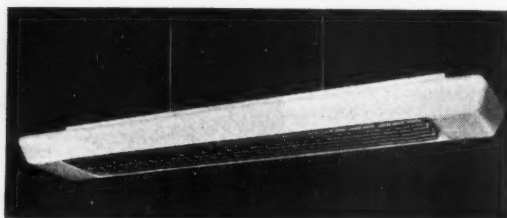
The unit is constructed of "bonderised" sheet steel, finished in stoved enamel, and, as a precaution against oil and grease, is sealed by Neoprene gaskets. The flexible cable carrying the mains supply is also sheathed in Neoprene or P.V.C.

Mercury vapour lamps

The addition of four new types to its mercury vapour lamp range has been announced by the Lighting Division of Sylvania Electric Products. Two are 1,000-watt colour-improved lamps of the semi-reflector type, while two are in the 425-watt range for use on 277/480 voltage supply to take advantage of the economies possible with that system.

Fluorescent luminaires

Falk, Stadelmann and Co. Ltd. have introduced a new range (the "Thames") of decorative luminaires for fluorescent lamps. The range has been designed to provide 30 luminaires from a small number of basic parts. The parts are constructed so that the body complete with louvre or



diffusing panel can be easily detached from the channel by one person; the cover of the gear channel is removable to give access to the control gear. The body is available in sheet steel and in "Perspex." They may be fitted direct to the ceiling or suspended.

Industrial reflector fittings

Philips Electrical Ltd. announce new industrial trough reflector fittings for 4-ft. and 5-ft. bi-pin fluorescent lamps. It is claimed that these fittings combine high efficiency and favourable distribution of light with simplicity and soundness of construction. Known as the "TK" series, they are available with plain or slotted reflectors for single or twin lamps and are equipped with the new Philips "Polyester" silent, cool-running, totally-enclosed, canned ballasts. Coupling and shielding strips can be supplied for row-mounting. The lamps are firmly held by spring-loaded, rotor-type lampholders. The reflector can very easily be removed, without the aid of tools, for cleaning. While open ends are standard there is provision for the fitting of endplates. Metal-framed "Polystyrene" louvres are also available for use with these fittings.

Trade Literature

CRYSELCO LTD., Kempston Works, Bedford. — Two new leaflets, one giving details and prices of industrial fluorescent fittings and the other illustrating auxiliary control gear.

H. W. FIELD AND SON, LTD., Harold Wood, Essex. — New price list of fluorescent lighting fittings and control gear.

LINOLITE LTD., 118, Baker Street, London, W.1. — Two information sheets, one describing the Linora "LB" fluorescent reflector designed for use with 1-in. diameter fluorescent lamps and the other giving details of the Linora "FJ" and "FK" reflectors for use in shop windows, showcase and general local lighting.

Trade Notes

Atlas Lighting Limited

Thorn Electrical Industries Ltd. announce that, in view of the continued expansion of their business in recent years, the whole of their lighting activities have been transferred to a fully owned subsidiary, Atlas Lighting Limited, with registered offices at 233, Shaftesbury Avenue, London, W.C.2.

The new company will be responsible for the development, manufacture and sale of all "Atlas" tungsten filament and discharge lamps, including fluorescent lamps, electric light fittings and fluorescent control gear and accessories.

The board of directors is: A. Deutsch, A.M.I.E.E. (chairman), H. H. Ballin, Ph.D., B.Sc.(Econ.), F.I.E.S., J. G. Christopher, T.D., F.I.E.S., A. J. Ford, D. A. Neill, B.Sc., A. S. Shier, J. W. Strange, Ph.D., A.R.C.Sc., F.I.E.S., G. J. Strowger (secretary).

The commercial headquarters and London showrooms will remain at 233, Shaftesbury Avenue, W.C.2, and the address of the accounts department and of all London and provincial sales offices, order departments and warehouses will also be unchanged.

Personal

MR. GUY CAMPBELL resigned from the board of Holophane Limited as from June 30, 1957. During more than 20 years Mr. Campbell served as a Director and for almost the whole of that time he was Chairman of the board. It was during this period that, under his leadership, the commercial and financial status of the company was markedly improved.

DR. S. ENGLISH, D.Sc., F.Inst.P., M.I.E.E., F.I.E.S., has been elected in his stead. Dr. English served the company for more than 20 years, successively as Technical Director, Joint Managing Director and Vice-Chairman. His developments and inventions served as the technical basis for the commercial improvement referred to above.

MR. H. BROOKE has been appointed Lighting Representative for Philips Electrical Ltd. in the North Staffordshire area. He will be based upon the company's depot at Hanley, Stoke-on-Trent.

The Engineering and Lighting Equipment Co. Ltd. announce the following changes in their sales areas. MR. L. V. HARVEY, Birmingham Area Sales Manager, who has previously covered Staffordshire, Shropshire and Worcestershire and part of Herefordshire, is now adding Warwickshire and Northamptonshire to his territory, and MR. L. A. GARNER, Area Sales Manager for South-East London, will now be covering the whole of Kent and East Sussex in addition.

MR. R. ASPINALL, formerly employed in the Lighting Department of the Benjamin Electric Ltd., has joined the Lighting Department of the AEI Lamp and Lighting Co. Ltd., North-East Region, where he will be located at Regional Headquarters in Leeds.

MR. K. T. HACKETT has been appointed representative in the South Staffs area of the Midlands Region of the AEI Lamp and Lighting Co. Ltd.

Sangamo Weston Ltd. announce that MR. C. L. HILLS has been appointed Contracts Manager of the Meter and Time Switch Sales Division.

SLR Electric Ltd. announce that MR. DEREK J. T. LAST and MR. KENNETH H. W. LAST have been appointed Technical Directors of their company. The Design and Illuminating Dept. will be controlled by Mr. Kenneth H. W. Last.

Miscellany

Lighting in a Milan banking hall

The lighting installation illustrated on page 258 comprises three elements: an existing indirect scheme (135 4-ft. fluorescent lamps concealed in the transverse members of the ceiling structure); newly installed "luminous beams" (159 8-ft. "Stimline" lamps in fittings with stove-enamelled egg-crate louvres); and rows of surface-mounted fittings, also

with egg-crate louvres and housing, in all, 528 2-ft. fluorescent lamps, which have been used to light the office areas at either end of the hall.

The total area of the hall is 14,000 sq. ft. and the central area, with its horseshoe-shaped counter, is 27 ft. high. Walls and columns are light-ivory in colour and have a reflection factor of 60 per cent. Because of the relatively small window area, daylight contributes very little to the illumination level (now about 18 lm/ft²) and the lighting load is 30 kw. The installation was designed by Ugo Pollice, in collaboration with the engineers of the bank—the Cassa di Risparmio della Provincia Lombarde.

Situations

Vacant

TECHNICAL ASSISTANTS (one Senior, one Junior) for the preparation of lighting schemes, Illuminating Engineering Department, old established manufacturers of lighting equipment. Five-day week. Pension fund. State age and experience. Chief Engineer, Technical Service Department, Holophane Ltd., Elverton St., Westminster, S.W.1.

Ekco-Ensign Electric Ltd., 45, Essex Street, W.C.2, require (a) YOUNG LIGHTING ENGINEER for I.E. Dept., London; (b) LIGHTING ENGINEER to contact architects and consultants; (c) ELECTRIC LIGHTING FITTINGS DESIGNER. Apply Senior Lighting Engineer.

COMMERCIAL ASSISTANT required for the Lighting Division of a Company marketing a good range of lighting fittings and accessories. The candidates should be between 25-35 years of age, with experience of commercial correspondence, enquiries and quotations. Some knowledge of wiring and sheet metal work is an advantage. The post is pensionable, and offers a salary in accordance with age and experience. Applications should be addressed in confidence to the Employment Officer, Philips Electrical Ltd., Century House, Shaftesbury Avenue, W.C.2, quoting ref.: 129.

JOSEPH LUCAS (ELECTRICAL) LIMITED GREAT KING STREET, BIRMINGHAM

As a result of expansion of our road vehicle lighting development department to meet the growing demands of the motor industry we have vacancies for engineers and physicists of at least H.N.C. standard to work on the following projects. Experience or knowledge of photometric and electrical instruments desirable.

The design and development of vehicle lighting equipment and in particular the development of optical systems for future projects.

Development work on specific problems related to vehicle lighting equipment and the design of laboratory and factory control equipment for these products.

In addition there are vacancies for senior designers required to work in close co-operation with car designers and styling engineers on the design of lighting equipment for new car models. Experience in the design of pressed metal components for large quantity production desirable. All these positions carry attractive starting salaries and provide excellent prospects for advancement. Staff Pension Fund.

Apply in writing, stating age, qualifications and experience to the Personnel Manager, Joseph Lucas (Electrical) Limited, Great King Street, Birmingham 19, quoting reference PM/D/156.

POSTSCRIPT By 'Lumeritas'

AT THE TIME of writing I have not seen "The Story of Woburn" in light and sound, but I have seen "Son et Lumière" at Greenwich and was duly impressed. By this I do not mean that the spectacle was above criticism, but its shortcomings—if such they were—did not seriously impair my enjoyment of it and, so far as I could judge, the audience in general was very well pleased. I thought the stereophonic sound might have been a little more noticeably stereophonic, and the lighting "script" could have been bettered here and there. But this "art form" is still in its infancy and, beautiful though its expressions have been, it may give us greater delight as it develops.

HMSO, which is, I believe, now easily the largest publisher in the country, has just produced two interesting publications containing references to light and lighting; these are the Report of the DSIR for the year 1955-56 and Road Research, 1956. The first of these publications is a comprehensive report dealing with all the Research Boards of the DSIR, among which is the Road Research Board. But the report also deals with the work of the NPL, although this work, as well as that of the RRL, is dealt with at greater length in the separate annual reports prepared by these establishments. In the year under review, and for the first time for nearly 20 years, the primary standard of light—which is a black body at the freezing point of platinum—was set up for the purpose of checking the calibration of NPL secondary standard lamps which are of such importance to the lamp industry. Mention is also made of the measurements undertaken to establish the colour-matching functions of human observers both with the present standard 2-deg. field and with a larger field of 10 deg. The expectation is that during the current year sufficient of these measurements will be available as a basis for possible revision of the "standard observer." Another matter of interest is the development of a photo-electric instrument for measuring the performance of red retro-reflectors. Measurements are made with this instrument down to levels below 0.0000001 lumens/sq. ft. and with an error not exceeding about ± 3 per cent.!

As to that part of the extensive work of the Road Research Laboratory which relates to lighting, reference is made to data already reported in papers by RRL investigators which show that improvements in the lighting of certain streets significantly reduced the number of night-time personal-injury accidents. Assuming that each such accident costs the country about £500, the saving effected by reducing the number of accidents is said to be of the same order as the cost, spread over 15 years, of installing and running the improved lighting. There is thus a net gain at least in terms of human suffering prevented. A full-scale trial is being made of a low-cost lighting scheme which it is thought may be valuable on stretches of road near towns which are usually unlighted although they carry large amounts of fast traffic at night. In this scheme, cut-off lanterns at three times the normal spacing are being used. The idea is that

the series of patches of light thus provided will serve to show the general direction of the road and also help to reveal the presence of other vehicles. The use of full headlights should be unnecessary on a road with this scheme of lighting, although dipped headlamps will be required. The effect of this lighting system on vehicle speeds and accidents is being studied.

MY CYNICAL comment last month *anent* naming the unit of illumination used in English-speaking countries has brought me the retort "Why don't you try being constructive instead of defeatist in this matter?" Well, of the ten names which have been suggested in the pages of this journal from 1948 onwards, certainly one can be charged against me. However, I am willing to have another go! The unit of illumination in question is larger than that other unit which rejoices in the name 'lux.' In fact—if I may put it in pseudo trans-Atlantic vernacular—it is a lux "and then some," or, briefly, "a lux plus." Of course this won't do as it stands, but notice that both 'lux' and 'plus' contain the relevant root 'lu.' Very well, we don't want it twice in one name, nor is 's' needed since, like lux, the name we seek need have no plural. We are left with 'p' and 'lux' and so with the monosyllabic name 'plux.' This suggests both that it is a unit of illumination and that it is related quantitatively to 'lux.' The relation is, of course, the well-known one, i.e., one 'plux' = 10.76 lux or, approximately, one 'decalux.' Incidentally—and quite apart from naming our own unit of illumination—if those countries now using 'lux' would specify values of illumination in 'decalux' their recommended values and ours would not be very different numerically. In fact, it would matter little in actual lighting practice whether an installation were designed to give n lumens/sq. ft. or n 'decalux'; for most practical purposes n 'plux' and n 'decalux' are similar illuminations. Anyhow, I offer 'plux' to the English-speaking lighting world free. But, if it is rejected, the makers of a certain brand of soap flakes may care to make me an offer for the valuable copyright in this name for a super brand of their product.

HERE follows the solution of the third and last crossword puzzle. Across: 1, Obtenebrate. 9, D.V. 10, Retail. 11, L.s.d. 13, C.I.E. 14, Dow. 15, Uist. 17, Harvest. 18, Lambert. 21, It. 22, Arni. 23, Eu. 24, Ahri-man. 26, Studies. 28, Re. 29, Et. 30, Sects. 31, Orthodox. 35, Meso. 36, Sma'. 37, Rails. 40, Circumbient. 44, U.C. 45, Tied. 46, Eel. 49, Bronx. 50, Media. 52, Omega. 55, Reeded. 56, GL. 57, Elan. 58, I.E.S. 59, Rho. 60, Yes. 61, Cos. 62, Luxate. Down: 1, Over. 2, Eros. 3, Newton. 4, Et. 5, Ballast. 6, R.I. 7, Alumnus. 8, Else. 9, Diathermic. 12, Streets. 13, Chiaroscuro. 14, Deem. 16, Ibidem. 19, Art. 20, Tussore. 25, Aid. 27, Ice. 29, Examinees. 32, Tar. 33, Oratorio. 34, Slid. 38, Ibexes. 39, S.E. 41, Urban. 42, Need. 43, Ted. 47, Light. 48, Tele. 50, Menu. 51, Aloe. 53, Mey. 54, Gas. 59, Ra.

ING

e to
o to
full
this
be
icle

ning
tries
con-
l, of
es of
be
an-
rger
In
ar—
Of
both
Very
's'
e no
the
it is
ively
one,
one
ming
now
n in
not
atter
ation
ux';
' are
the
cted,
re to
name

ross-
10,
17,
24,
31,
40,
ronx.
Elan.
xate.
llast.
reets.
20,
33,
rban.
51.